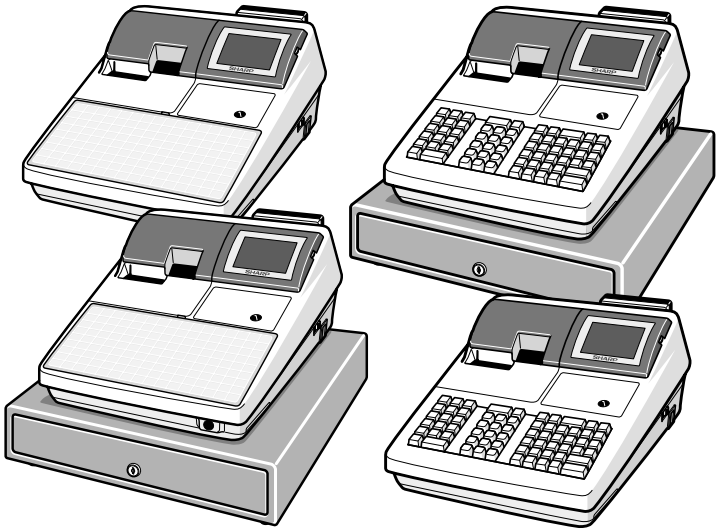
# SHARP SERVICE MANUAL

CODE : 00ZUP600VSM/E



UP-700 UP-600

## MODEL UP-600 UP-700

**SRV Key : LKGIM7113RCZZ**
**PRINTER : PR-58HA**
**(For "V" version)**

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PARTS GUIDE


Parts marked with "⚠" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

**SHARP CORPORATION**

This document has been published to be used for after sales service only.
The contents are subject to change without notice.

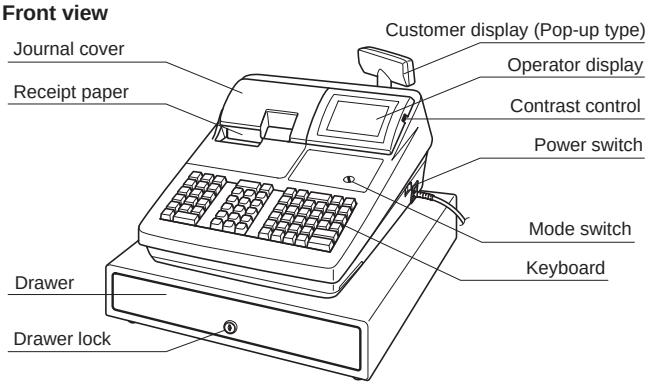
# CHAPTER 1. SPECIFICATION

## 1. APEARANCE

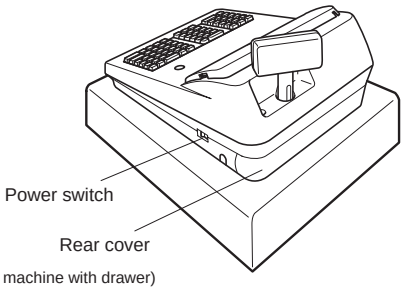
**External view**

**<UP-600>**

**Front view**



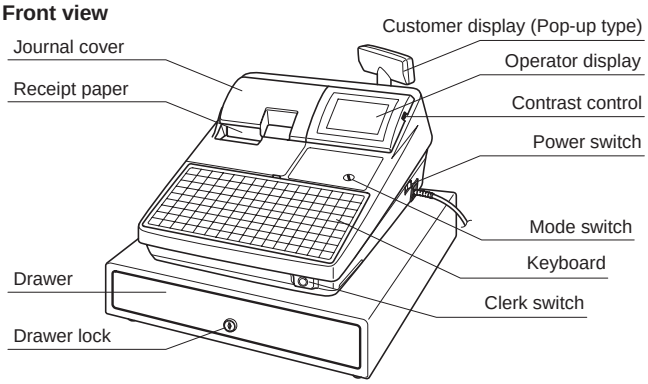

**Rear view**



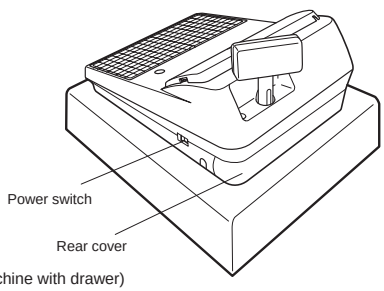

(The machine with drawer)

**<UP-700>**

**Front view**




**Rear view**




(The machine with drawer)

## 2. RATING

| | UP-600 | UP-700 |
|---|---|---|
| External dimensions : With a drawer (With the pop-up displayed housed) | 420 (W) x 448 (D) x 306 (H) mm | |
| External dimensions : Without a drawer (With the pop-up displayed housed) | 340 (W) x 433 (D) x 202 (H) mm | |
| Weight : With a drawer | 15.0kg | |
| Weight : Without a drawer | 7.0kg | |
| Power source | Official (normal) voltage and frequency | |
| Power consumption | Stand-by : 18 W<br>Operating : 68 W (max.) | |
| Working temperatures | 0 to 40 °C | |

∗ TQ, TR, TS version : Without a drawer.

∗ KA, KB version : With a drawer.

∗ The height of the ECR is 50 mm higher when the pop-up display is pulled up.

## 3. KEYBOARD

### 1) STANDARD KEYBOARD LAYOUT

**<UP-600>**

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RECEIPT | JOURNAL | RCPT | | PLU/EAN | AMT | | CUST | REPEAT | PRICE CHANGE | | INQ | CASH # |
| MISC FUNC | CANCEL | ENTER | | ⊗ | • | CL | 5 | 10 | 15 | 20 | AUTO 1 | AUTO 2 |
| PAGE UP | ↑ | PAGE DOWN | | 7 | 8 | 9 | 4 | 9 | 14 | 19 | EX # | CHARGE |
| ← | ↓ | → | | 4 | 5 | 6 | 3 | 8 | 13 | 18 | CH # | CR # |
| RA | PO | #/TM | | 1 | 2 | 3 | 2 | 7 | 12 | 17 | ST | |
| RF | ∞ | | | 0 | 00 | 000 | 1 | 6 | 11 | 16 | TL | |

**<UP-700>**

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RECEIPT | JOURNAL | G.C. RCPT | AUTO 1 | TEXT # | 9 | 18 | 27 | 36 | 45 | 54 | 63 | 72 | 81 | 90 | 99 |
| MISC FUNC | CANCEL | ENTER | AUTO 2 | LEVEL # | 8 | 17 | 26 | 35 | 44 | 53 | 62 | 71 | 80 | 89 | 98 |
| PAGE UP | ↑ | PAGE DOWN | VAT SHIFT | EX # | 7 | 16 | 25 | 34 | 43 | 52 | 61 | 70 | 79 | 88 | 97 |
| ← | ↓ | → | PLU/ SUB | ∞ | 6 | 15 | 24 | 33 | 42 | 51 | 60 | 69 | 78 | 87 | 96 |
| ⊗ | • | CL | BS | RECALL GLU | 5 | 14 | 23 | 32 | 41 | 50 | 59 | 68 | 77 | 86 | 95 |
| 7 | 8 | 9 | OPENED GLU | GLU | 4 | 13 | 22 | 31 | 40 | 49 | 58 | 67 | 76 | 85 | 94 |
| 4 | 5 | 6 | CH # | NBAL | 3 | 12 | 21 | 30 | 39 | 48 | 57 | 66 | 75 | 84 | 93 |
| 1 | 2 | 3 | CR # | FINAL | 2 | 11 | 20 | 29 | 38 | 47 | 56 | 65 | 74 | 83 | 92 |
| 00 | 0 | 000 | ST | TL | 1 | 10 | 19 | 28 | 37 | 46 | 55 | 64 | 73 | 82 | 91 |

## 2) KEY TOP NAME

① Standard key top

| KEY TOP | DESCRIPTION | UP-600 | UP-700 |
|---|---|---|---|
| 0-9, 00, 000 | Numeric keys | ○ | ○ |
| ● | Decimal Point key | ○ | ○ |
| CL | Clear key | ○ | ○ |
| ⊗ | Multiplication key | ○ | ○ |
| RECEIPT ↑ | Receipt paper feed key | ○ | ○ |
| JOURNAL ↑ | Journal paper feed key | ○ | ○ |
| PAGE UP | Page up key | ○ | ○ |
| PAGE DOWN | Page down key | ○ | ○ |
| RA | Received-on-account key | ○ | - |
| PO | Paid-out key | ○ | - |
| MISC FUNC | Miscellaneous function key | ○ | ○ |
| #/TM | Non-add code / Date & time key | ○ | - |
| CANCEL | Cancel key | ○ | ○ |
| ← → ↑ ↓ | Cursor keys | ○ | ○ |
| ENTER | Enter key | ○ | ○ |
| EX# | Foreign currency exchange menu key | ○ | ○ |
| RF | Refund Key | ○ | - |
| CASH# | Cashier code entry key | ○ | - |
| RCPT | Receipt print Key | ○ | - |
| ∞ | Void Key | ○ | ○ |
| PLU/EAN | PLU/EAN code entry key | ○ | - |
| PLU/SUB | PLU/SUB dept. code entry key | - | ○ |
| AMT | Amount entry key | ○ | - |
| (Dept) 1 to 20 | DeparTent 1 to 20 keys | ○ | - |
| (D-PLU) 1 to 99 | Direct PLU 1 to 99 keys | - | ○ |
| PRICE CHANGE | Price Change key | ○ | - |
| INQ | Inquiry key | ○ | - |
| REPEAT | Repeat entry key | ○ | - |
| AUTO1, 2 | Automatic sequencing1 and 2 keys | ○ | ○ |
| CR# | Credit Menu Key | ○ | ○ |
| CH# | Check Menu Key | ○ | ○ |
| ST | Subtotal Key | ○ | ○ |
| TL | Total Key | ○ | ○ |
| CUST | Customer Code entry key | ○ | - |
| CHARGE | Tentative Finalization key | ○ | - |
| FINAL | Tentative finalization key | - | ○ |
| TEXT# | Text Menu key | - | ○ |
| LEVEL# | PLU level shift key | - | ○ |
| OPENED GLU | Opened GLU list key | - | ○ |
| GLU | Guest Look-up key | - | ○ |
| NBAL | New Balance key | - | ○ |
| RECALL GLU | Recall GLU key | - | ○ |
| G.C.RCPT | Guest Check Receipt key | - | ○ |
| BS | Bill Separate key | - | ○ |
| VAT SHIFT | TAX Shift Key | - | ○ |

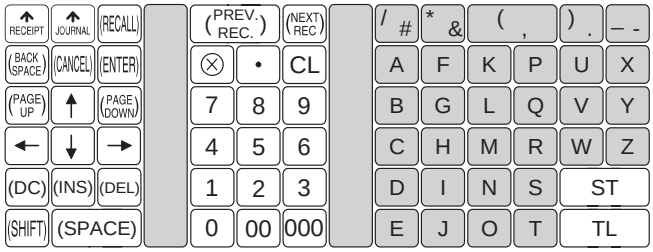
② Optional key top

| KEY TOP | DESCRIPTION | UP-600 | UP-700 |
|---|---|---|---|
| BACK SPACE | Back space key | ○ | ○ |
| (D-PLU) 1 to 89 | Direct PLU 1 to 89 Keys | ○ | - |
| (D-PLU) 100 to 123 | Direct PLU 100 to 123 Keys | - | ○ |
| (Dept) 21 to 99 | Department 21 to 99 Keys | ○ | - |
| (Dept) 1 to 99 | Department 1 to 99 Keys | - | ○ |
| TEXT 1 to 10 | Text 1 to 10 keys | ○ | ○ |
| %1 to 5 | Percent 1 to 5 keys | ○ | ○ |
| (-) 1 to 5 | Discount 1 to 5 keys | ○ | ○ |
| CR1 to 9 | Credit 1 to 9 keys | ○ | ○ |
| CA# | Cash menu key | ○ | - |
| CA2 to 5 | Cash total 2 to 5 keys | ○ | ○ |
| EX1 to 9 | Foreign currency exchange 1 to 9 keys | ○ | ○ |
| RA1 to 2 | Received-on-Account 1 and 2 keys | - | ○ |
| RA2 | Received-on-Account 2 key | ○ | - |
| PO1 to 2 | Paid out key 1 and 2 keys | - | ○ |
| PO2 | Paid out key 2 key | ○ | - |
| AUTO3 to 10 | Automatically Entry 3 to 10 Keys | ○ | ○ |
| CH1 to 5 | Check 1 to 5 keys | ○ | ○ |
| FINAL | Tentative finalization key | ○ | - |
| P-SHIFT# | Price level shift number key | ○ | ○ |
| LEVEL# | PLU level shift key | ○ | - |
| GUEST# | | ○ | - |
| OPENED GLU | Opened GLU list key | ○ | - |
| GLU | Guest Look-up key | ○ | - |
| NBAL | New Balance key | ○ | - |
| CASH TIP | Cash tip key | ○ | ○ |
| NON-CASH TIP | Non-cash tip key | ○ | ○ |
| TIP PAID | Tip paid key | ○ | ○ |
| 12 | 1/2 key | ○ | ○ |
| NS | No sale key | ○ | ○ |
| CLERK# | Clerk code entry key | ○ | ○ |
| SCALE | Scale entry key | ○ | ○ |
| OPEN TARE | Tare entry key | ○ | ○ |
| SLIP | Slip printer key | ○ | ○ |
| RCP SW | Receipt ON/OFF key | ○ | ○ |
| PINT | Pint key | ○ | ○ |
| DEPO (+) | Deposit plus entry key | ○ | ○ |
| DEPO (-) | Deposit minus entry key | ○ | ○ |
| DEPT# | Department number key | ○ | ○ |
| TEXT# | Text number key | ○ | - |
| WITH | With key | ○ | ○ |
| WITH OUT | Without key | ○ | ○ |
| G.C. RCPT | Guest check receipt key | ○ | - |
| TRANS OUT | Transfer out key | ○ | ○ |
| TRANS IN | Transfer in key | ○ | ○ |

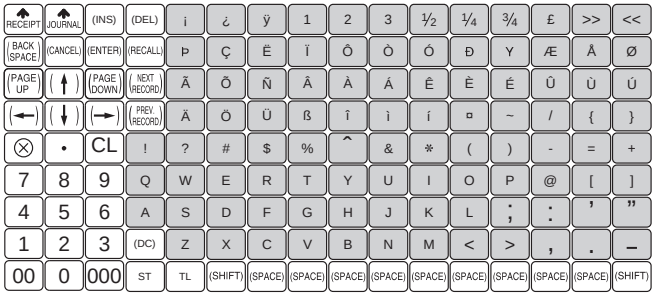
| KEY TOP | DESCRIPTION | UP-600 | UP-700 |
|---|---|---|---|
| RCP SW | Receipt shift key | ○ | ○ |
| BS | Bill separation key | ○ | - |
| BT | Bill totalize / bill transfer key | ○ | ○ |
| VP | Validation print key | ○ | ○ |
| RTN | Return key | ○ | ○ |
| DIFFER ST | Difference subtotal key | ○ | ○ |
| VAT | Value-added tax key | ○ | ○ |
| VAT SHIFT | Value-added tax shift key | ○ | - |
| GC COPY | Guest check copy key | ○ | ○ |
| VIP1 to 3 | VIP sale 1 to 3 keys | ○ | ○ |
| CLK1 to 10 | Clerk entry 1 to 10 keys | ○ | ○ |
| CHK PRINT | Check print key | ○ | ○ |
| L1 to 3 | PLU level shift 1 to 3 keys | ○ | ○ |
| PRICE SHIFT1 to 3 | Price level shift 1 to 3 keys | ○ | ○ |
| PLU MENU01 to 25 | PLU menu 1 to 25 keys | ○ | ○ |
| C_NEXT | Condiments next key | ○ | ○ |
| E.BILL | Entertaiment bill key | ○ | ○ |
| RECALL GLU | Recall total status key | ○ | - |
| S.SFT | Sort group shift key | ○ | ○ |
| DEL | Delete key | ○ | ○ |
| RF | Refund key | - | ○ |
| AMT | Amount entry key | - | ○ |
| #/TM | Non-add code / Date & Time display key | - | ○ |
| CASH# | Cashier code entry key | - | ○ |
| RCPT | Receipt print key | - | ○ |
| REPEAT | Repeat key | - | ○ |
| INQ | Inquiry key | - | ○ |
| CUST | Customer code entry key | - | ○ |
| PRICE CHANGE | EAN price change key | - | ○ |
| CHARGE | Charge key | - | ○ |

## 3) TEST PROGRAMMING KEY SHEET LAYOUT

### <UP-600 : Keyboard cover type>



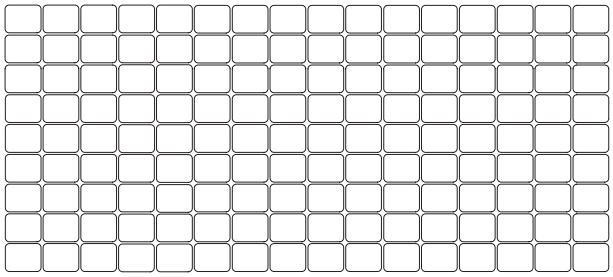

### <UP-700 : Keyboard sheet type>




: The shaded area contains the character keys which are used for programming characters.

| KEY TOP | DESCRIPTION |
|---|---|
| SHIFT | Used for programming characters. For more information about programming characters, see the section "How to Enter Alphanumeric Characters." |
| DC | |
| INS | |
| DEL | |
| BACK SPACE | |
| → ← ↑ ↓ | Used to move the cursor. |
| ENTER | Used to program each setting. |
| TL | Used to finalize programming. |
| CANCEL | Used to cancel programming and to get back to the previous screen. |
| PREV RECORD | Used to go back to the previous record, e.g. from the department 2 programming window back to the department 1 programming window. |
| NEXT RECORD | Used to go to the next record, for example, in order to program unit prices for sequential departments. |
| PAGE DOWN | Used to scroll the window to go to the next page. |
| PAGE UP | Used to scroll the window to go back to the previous page. |
| CL | Used to clear the last setting you have programmed or clear the error state. |
| ● | Used to toggle between two or more options. |
| ST | Used to list those options which you can toggle by the [ ● ] key. |
| RECALL | Used to call up a desired code. |
| Numeric keys | Used for entering figures. |

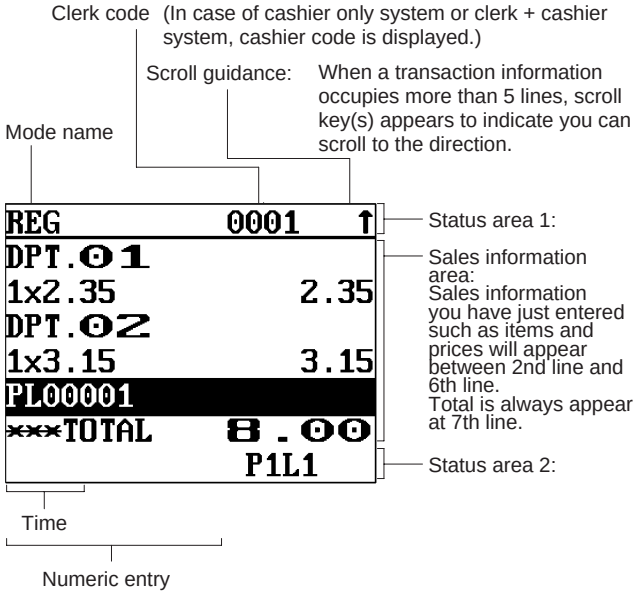
### 4) BLANK KEY SHEET LAYOUT (Only for UP-700)



## 3. DISPLAY

### 1) OPERATOR DISPLAY

- Screen example 1 (REG mode)


Clerk code (In case of cashier only system or clerk + cashier system, cashier code is displayed.)
Scroll guidance:
When a transaction information occupies more than 5 lines, scroll key(s) appears to indicate you can scroll to the direction.
Mode name
REG 0001
DPT.01
1x2.35 2.35
DPT.02
1x3.15 3.15
PL00001
***TOTAL 8.00
P1L1
Status area 1:
Sales information area:
Sales information you have just entered such as items and prices will appear between 2nd line and 6th line.
Total is always appear at 7th line.
Status area 2:
Time
Numeric entry

**Price level shift indicator (P1-P3)** : Shows the PLU/EAN price level currently selected.

**PLU level shift indicator (L1-L3)** : Shows the PLU level currently selected.

**Receipt shift indicator (r)** : Shows the receipt shift status.

**T-Log near full indicator ( ■ )** : Appears ( ■ ) when the used memory is 80%.

: Appears ( ■ ) when the used memory is 90%.

: Appears ( ■ ) when the used memory is 95%.

**Stock alarm indicator ( ! )** : Appears when the stock of the PLU which you entered is zero, negative or reaches the minimum stock.

**VAT shift status indicator (V)** : Appears when the VAT status is shifted.

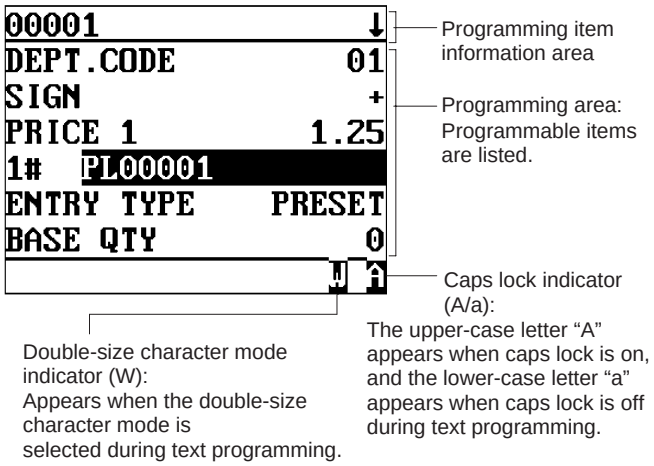
**Electronic mail indicator (M)** : Appears when an electronic mail is received. (Status 1 area)

**Receipt ON/OFF status indicator (R)** : Appears when the receipt ON-OFF function signs OFF.

**Sentinel mark (X)** : Appears in the lower right corner of the screen when the cash in drawer exceeds a programmed sentinel amount. The sentinel check is performed for the total cash in drawer.

**VMP file full indicator (1,2, or 3)** : When a VMP file used memory is 90% or more, its file number is indicated.

- Screen example 2 (PGM mode)


00001
DEPT.CODE 01
SIGN +
PRICE 1 1.25
1# PL00001
ENTRY TYPE PRESET
BASE QTY 0
W
a
Programming item information area
Programming area: Programmable items are listed.
Caps lock indicator (A/a):
The upper-case letter “A” appears when caps lock is on, and the lower-case letter “a” appears when caps lock is off during text programming.
Double-size character mode indicator (W):
Appears when the double-size character mode is selected during text programming.

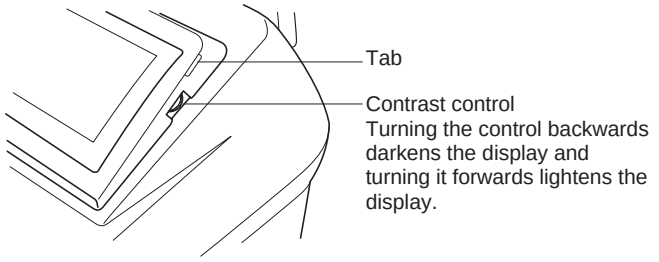
**Screen save mode**

When you want to save the electric power or save the display's life, use the screen save function. This function can turn the LCD off when any server does not operate the POS terminal for an extended period of time. You can program the time for which your POS terminal should keep the normal status (in which the backlight is "ON") before it goes into the screen save mode.
To go back to the normal mode, press any key.

| | |
|---|---|
| Device type | LCD display |
| Dot format | 320(W) x 240(H) Full dot |
| Dot size | 0.24 (W) x 0.21 (H) mm |
| Dot space | 0.02 mm |
| Dot color | White |
| Back color | Dark blue |

### 2) DISPLAY ADJUSTMENT (OPERATION DISPLAY)

You can adjust the contrast of the display by using the contrast control, and also you can adjust the display angle. Pull up the tab, the display will head up.

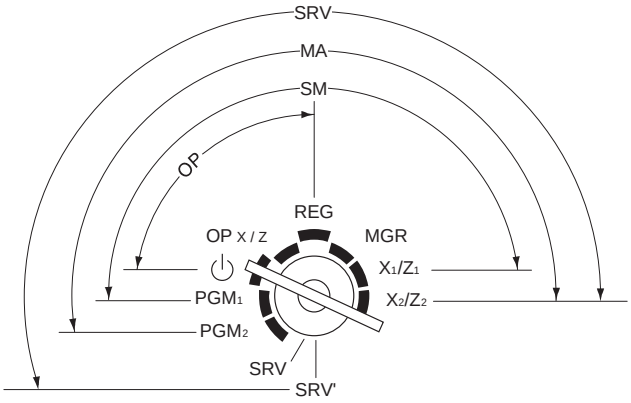



The backlight in the display is a consumable part.
When the LCD display may no longer be adjusted and becomes darker, you should change the backlight.
Consult your authorized SHARP dealer for further details.

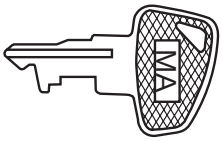
### 3) CUSTOMER DISPLAY (Pop-up-type)

# 4. KEYS AND SWITCHES

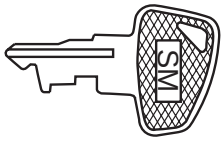
## 1) MODE SWITCH AND MODE KEYS



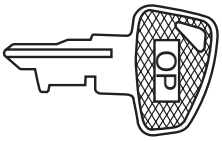

• Manager key (MA)



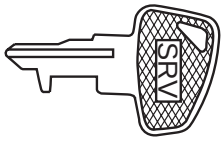

• Submanager key (SM)




• Operator key (OP)




• Service key (SRV)




The mode switch has these settings:

**⏻:** This mode locks all register operations. No change occurs to register data.

**OP X/Z:** This setting allows cashiers/clerks to take X or Z reports for their sales information. (This setting may be used only when your register has been programmed for "OP X/Z mode available" in the PGM2 mode.)

**REG:** For entering sales

**PGM1:** To program those items that need to be changed often: e.g., unit prices of departments, PLUs or EANs, and percentages

**PGM2:** To program all PGM1 items and those items that do not require frequent changes: e.g., date, time, or a variety of register functions

**MGR:** For manager's and submanager's entries
The manager can use this mode to make entries that are not permitted to be made by cashiers -for example, after-transaction voiding and override entry.

**X1/Z1:** To take the X/Z report for various daily totals

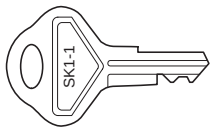
**X2/Z2:** To take the X/Z report for various periodic (weekly or monthly) consolidation

## 2) CLERK KEYS (Standard for the UP-700)

This POS terminal allows the operator to use clerk keys (real clerk keys) for clerk identification.
12 real clerk keys are provided with your POS terminal, and a maximum 126 real clerk keys can be provided.

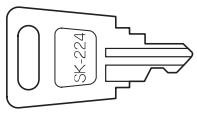
## 3) DRAWER LOCK KEY

This key locks and unlocks the drawer. To lock it, turn 90 degrees counterclockwise. To unlock it, turn 90 degrees clockwise.
(In case your POS terminal has not the drawer supplied by SHARP, this key is not supplied.)



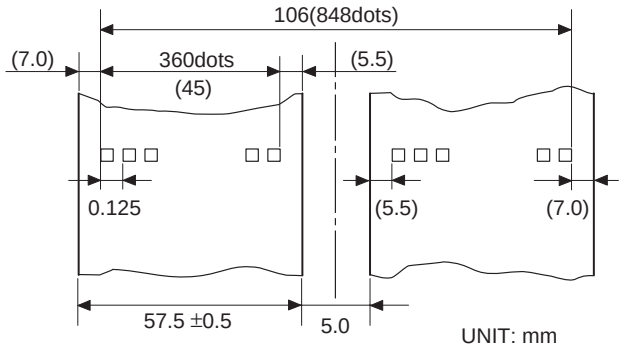

## 4) PRINTER COVER LOCK KEY

This key locks and unlocks the printer cover. To lock it, turn 90 degrees counterclockwise. To unlock, turn 90 degrees clockwise.

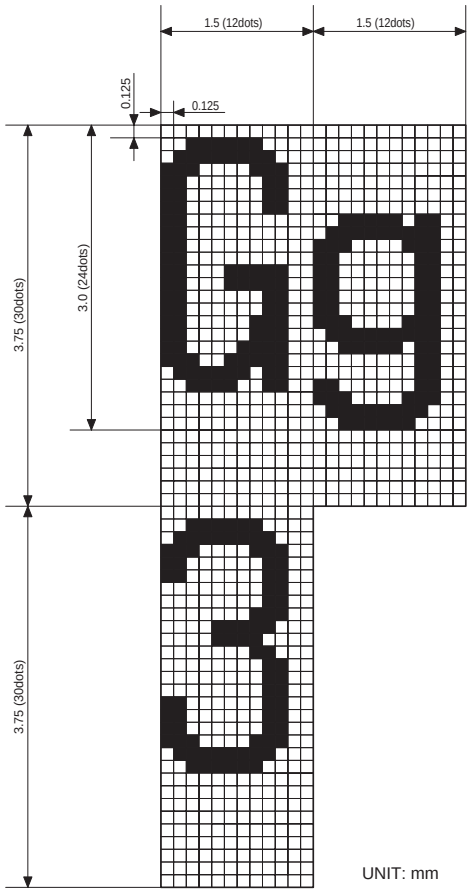


# 5. PRINTER

## 1) PRINTER (PR-58HA)

| Item | Description | |
|---|---|---|
| No. of station | 2: Receipt and Journal | |
| Validation | No | |
| Printing system | Line thermal | |
| No. of dot | Receipt: | 360 dots |
| | Journal | 360 dots |
| Dot pitch | Horizontal: | 0.125 mm |
| | Vertical: | 0.125 mm |
| Font | 10 dots (W) x 24 dots (H) | |
| Printing capacity | Receipt: | Max. 30 characters |
| | Journal: | Max. 30 characters |
| Character size | 1.25 mm (W) x 3.0 mm (H): | At 10 x 24 dots |
| Print pitch | Column distance: | 1.5 mm |
| | Row distance: | 3.75 mm |
| Paper feed speed | Approximate 65 mm/s | |
| Reliability | Mechanism: | MCBF 5 milion lines |
| Paper end sensor | Yes (Receipt and Journal) | |
| Cutter | Auto | |
| Paper near end sensor | No | |
| Printing area |  | |

| Item | Description |
|---|---|
| Printing format | 12 x 24 font |




### 2) AUTOCUTTER

| Item | Description |
|---|---|
| Cutting method | • Full cutting (excluding 4 points)<br>• Partial cutting (excluding 3 points) |
| Cuttable thickness | Thermal paper: 60 - 80 μ mm |
| Cuttable width | 57.5 ± 0.5 mm |
| Reliability | Life: 300,000 times |

### 3) PAPER

| Item | Description |
|---|---|
| Name | Heat-quality paper |
| Roll dimension | 57.5 ± 0.5 mm in width |
| Thickness | 0.06 mm to 0.08 mm |

## 6. DRAWER (Used for only KA and KB version)

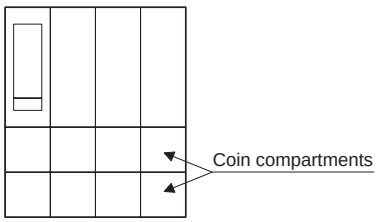
### 1) SPECIFICATION

#### (1) Drawer box and drawer

| | |
|---|---|
| Model name | SK-423 |
| Size | 420 (W) x 427 (L) x 114 (H) |
| Color | GRAY 368 |
| Material | Metal |
| Bell | — |
| Release lever | Standard equipment; Situated at the bottom |
| Drawer open sensor | Standard equipment |

### 2) MONEY CASE

| | |
|---|---|
| Separation from the drawer | Allowed |
| Separation of the coin compartments from the money case | Allowed |
| Bill separator | Standard (1 pcs) |
| Number of compartments | 4B/8C |




4B/8C

### 3) LOCK

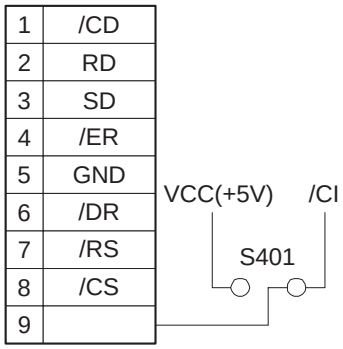
| | | |
|---|---|---|
| Location of the lock | Front | |
| Method of locking and unlocking | Locking: | Insert the drawer lock key into the lock and turn it 90 degrees counterclockwise. |
| | Unlocking: | Insert the drawer lock key into the lock and turn it 90 degrees clockwise. |
| Key No. | SK1-1 | |

# 7. RS232 INTERFACE

This machine have two the RS232 standard port for the communication to PC, Hand scanner (ER-A6HS1) and etc.

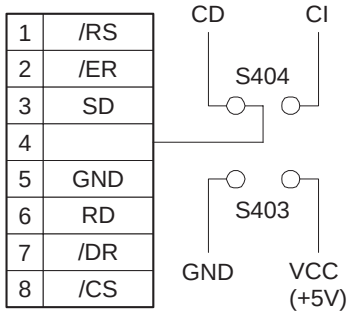
### 1) PORT 1 (CH1) (CN402)

Connector type: D-SUB 9pin
Data rate: max. 38,400 bps




### 2) PORT2 (CH2) (CN403)

Connector type: Modular jack RJ45 8pin
Data rate: max. 115,200 bps



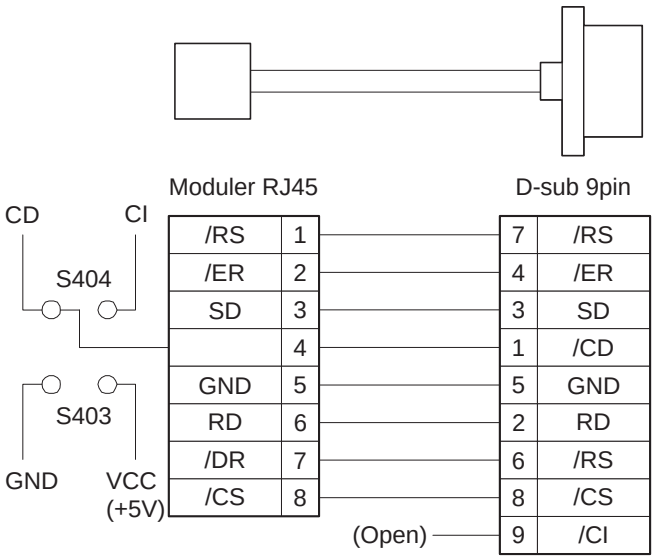

### 3) OPTIONAL DEVICES THAT CAN BE CONNECTED

| | Standard port | | Option port (ER-A5RS, ER-01EF) | |
|---|---|---|---|---|
| Port No. | Port1: CH1 | Port2: CH2 | Port3: | Port4: |
| Type | D-SUB 9pin | Moduler RJ45 | D-SUB 9pin | D-SUB 9pin |
| CI/+5V selectable | ○ | – | ○ | ○ |
| ER-A6HS1 (+5V necessary) | ○ | – | ○ | ○ |
| Scanner (+5V not necessary) | ○ | ○ | ○ | ○ |
| Modem | ○ | – | ○ | ○ |
| PC | ○ | ○ | ○ | ○ |
| Printer, Scale | ○ | ○ | ○ | ○ |
| POS utility, 02fd.exe | – | ○ | – | – |

∗ The ER-A6HS1 cannot be connected to port 2 because it requires +5V.

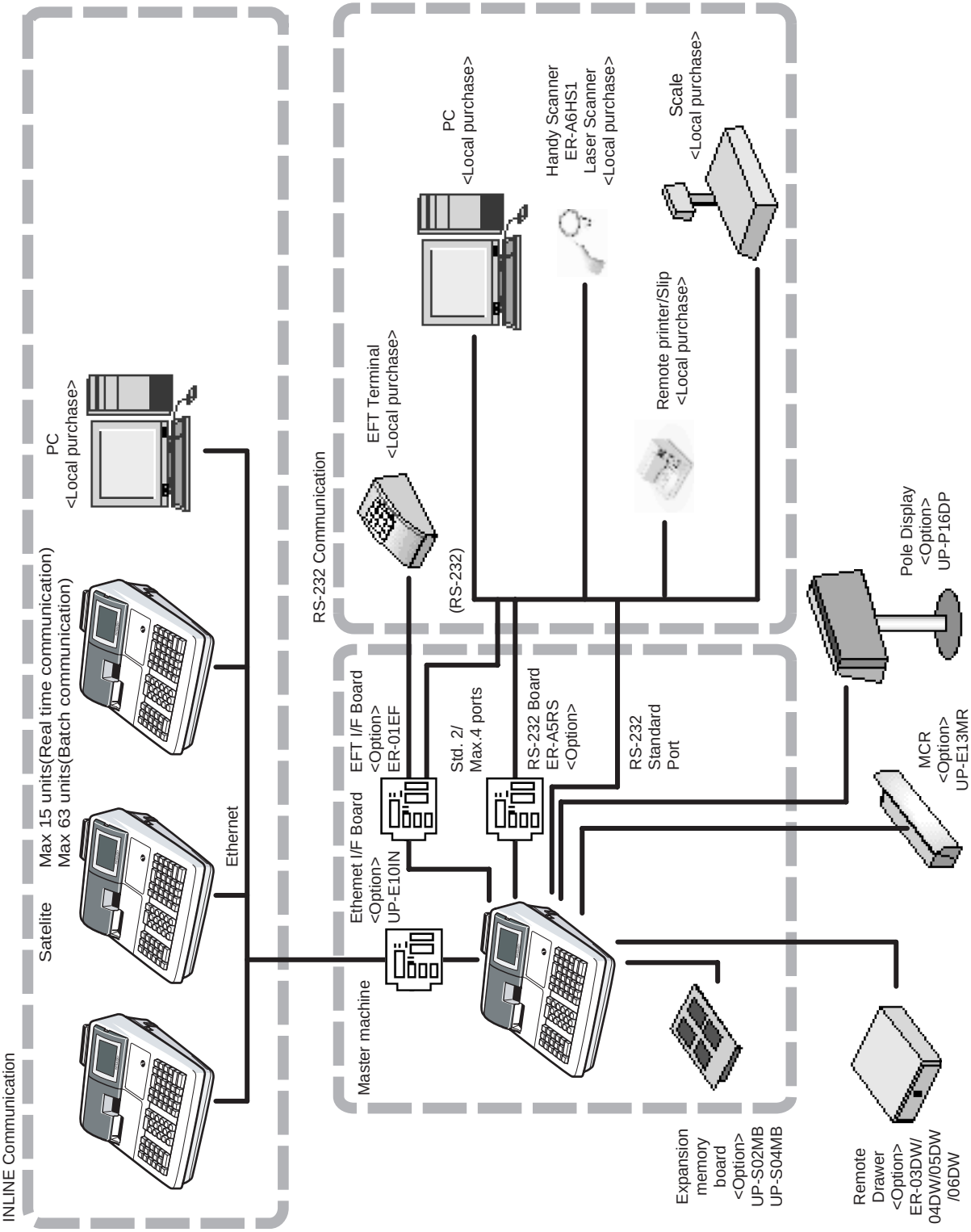
∗ The modem cannot be connected to port 2 because it uses a different signal line.

∗ For the conversion cable for the D-sub 9 pin and modular RJ-45, see the following.



# CHAPTER 2. OPTIONS

## 1. System configuration



## 2. SALES OPTIONS

| No. | CLASSIFICATION | COMPONENT NAME | MODEL NAME | REMARK |
|---|---|---|---|---|
| 1 | Memory | Expansion RAM board | UP-S02MB | 2M bytes PS-RAM board |
| | | | UP-S04MB | 4M bytes PS-RAM board |
| 2 | Display | Remote display (Pole type) | UP-P16DP | 11-Dig.7-Seg. + 16-Dig.Dot |
| 3 | Drawer | Remote drawer | ER-03DW | |
| | | | ER-04DW | |
| | | | ER-05DW | |
| | | Coin case | ER-48CC2 | 4B/8C |
| | | | ER-48CC3 | 4B/8C |
| | | | ER-58CC2 | 5B/8C |
| | | Coin case cover | ER-01CV1-5 | |
| | | | ER-02CV1-5 | |
| | | | ER-03CV | |
| 4 | On-line function | RS232 I/F board | ER-A5RS | 2 ports RS232 I/F |
| 5 | In-line funnction | In-line I/F | UP-E10IN | Ethernet I/F |
| 6 | Card reader | MCR (Magnetic Card Reader) | UP-E13MR | ISO Type 1 : 3 stripe card |
| 7 | EFT function | EFT terminal I/F | ER-01EF | |
| 8 | Scanner | Barcord hand scanner | ER-A6HS1 | |
| 9 | Key kit | 1 x 1 key top kit | ER-11KT7 | |
| | | 1 x 2 key top kit | ER-12KT7 | |
| | | 2 x 2 key top kit | ER-22KT7 | |
| | | 1 x 1 dummy key top kit | ER-11DK7G | |
| | | 5 x 1 dummy key top kit | ER-51DK7G | |

## 3. LOCAL PURCHASE OPTIONS

| No. | COMPONENT NAME | MODEL NAME | |
|---|---|---|---|
| 1 | External printer | TM-T85/T88/T88(2) | |
| | | TM-U210 | |
| 2 | Slipprinter | TM-295 | |
| 3 | Scale I/F | | |

## 4. SERVICE OPTIONS

| No. | NAME | PARTS CODE | PRICE | DESCRIPTION |
|---|---|---|---|---|
| 1 | 1 hole clerk key<br>The key No.1 to No.12 ore supplied together with UP-700. | LKGiM1004BH13 | BH | Key No. 13 |
| | | LKGiM1004BH14 | BH | Key No. 14 |
| | | LKGiM1004BH15 | BH | Key No. 15 |
| | | LKGiM1004BH16 | BH | Key No. 16 |
| | | LKGiM1004BH17 | BH | Key No. 17 |
| | | LKGiM1004BH18 | BH | Key No. 18 |
| | | LKGiM1004BH19 | BH | Key No. 19 |
| | | LKGiM1004BH20 | BH | Key No. 20 |
| | | LKGiM1004BH21 | BH | Key No. 21 |
| | | LKGiM1004BH22 | BH | Key No. 22 |
| | | LKGiM1004BH23 | BH | Key No. 23 |
| | | LKGiM1004BH24 | BH | Key No. 24 |
| | | LKGiM1004BH25 | BH | Key No. 25 |
| | | LKGiM1004BH26 | BH | Key No. 26 |
| | | LKGiM1004BH27 | BH | Key No. 27 |
| | | LKGiM1004BH28 | BH | Key No. 28 |
| | | LKGiM1004BH29 | BH | Key No. 29 |
| | | LKGiM1004BH30 | BH | Key No. 30 |
| | | LKGiM1004BH31 | BH | Key No. 31 |
| | | LKGiM1004BH32 | BH | Key No. 32 |
| | | LKGiM1004BH33 | BH | Key No. 33 |
| | | LKGiM1004BH34 | BH | Key No. 34 |
| | | LKGiM1004BH35 | BH | Key No. 35 |
| | | LKGiM1004BH36 | BH | Key No. 36 |
| | | LKGiM1004BH37 | BH | Key No. 37 |
| | | LKGiM1004BH38 | BH | Key No. 38 |
| | | LKGiM1004BH39 | BH | Key No. 39 |
| | | LKGiM1004BH40 | BH | Key No. 40 |
| | | LKGiM1004BH41 | BH | Key No. 41 |
| | | LKGiM1004BH42 | BH | Key No. 42 |
| | | LKGiM1004BH43 | BH | Key No. 43 |
| | | LKGiM1004BH44 | BH | Key No. 44 |
| | | LKGiM1004BH45 | BH | Key No. 45 |
| | | LKGiM1004BH46 | BH | Key No. 46 |
| | | LKGiM1004BH47 | BH | Key No. 47 |
| | | LKGiM1004BH48 | BH | Key No. 48 |
| | | LKGiM1004BH49 | BH | Key No. 49 |
| | | LKGiM1004BH50 | BH | Key No. 50 |
| | | LKGiM1004BH51 | BH | Key No. 51 |
| | | LKGiM1004BH52 | BH | Key No. 52 |
| | | LKGiM1004BH53 | BH | Key No. 53 |
| | | LKGiM1004BH54 | BH | Key No. 54 |
| | | LKGiM1004BH55 | BH | Key No. 55 |
| | | LKGiM1004BH56 | BH | Key No. 56 |
| | | LKGiM1004BH57 | BH | Key No. 57 |
| | | LKGiM1004BH58 | BH | Key No. 58 |
| | | LKGiM1004BH59 | BH | Key No. 59 |
| | | LKGiM1004BH60 | BH | Key No. 60 |
| | | LKGiM1004BH61 | BH | Key No. 61 |
| | | LKGiM1004BH62 | BH | Key No. 62 |
| | | LKGiM1004BH63 | BH | Key No. 63 |
| | | LKGiM1004BH64 | BH | Key No. 64 |
| | | LKGiM1004BH65 | BH | Key No. 65 |
| | | LKGiM1004BH66 | BH | Key No. 66 |
| | | LKGiM1004BH67 | BH | Key No. 67 |
| | | LKGiM1004BH68 | BH | Key No. 68 |
| | | LKGiM1004BH69 | BH | Key No. 69 |
| | | LKGiM1004BH70 | BH | Key No. 70 |

| No. | NAME | PARTS CODE | PRICE | DESCRIPTION |
|---|---|---|---|---|
| 1 | 1 hole clerk key<br>The key No.1 to No.12 ore supplied together with UP-700. | LKGiM1004BH71 | BH | Key No. 71 |
| | | LKGiM1004BH72 | BH | Key No. 72 |
| | | LKGiM1004BH73 | BH | Key No. 73 |
| | | LKGiM1004BH74 | BH | Key No. 74 |
| | | LKGiM1004BH75 | BH | Key No. 75 |
| | | LKGiM1004BH76 | BH | Key No. 76 |
| | | LKGiM1004BH77 | BH | Key No. 77 |
| | | LKGiM1004BH78 | BH | Key No. 78 |
| | | LKGiM1004BH79 | BH | Key No. 79 |
| | | LKGiM1004BH80 | BH | Key No. 80 |
| | | LKGiM1004BH81 | BH | Key No. 81 |
| | | LKGiM1004BH82 | BH | Key No. 82 |
| | | LKGiM1004BH83 | BH | Key No. 83 |
| | | LKGiM1004BH84 | BH | Key No. 84 |
| | | LKGiM1004BH85 | BH | Key No. 85 |
| | | LKGiM1004BH86 | BH | Key No. 86 |
| | | LKGiM1004BH87 | BH | Key No. 87 |
| | | LKGiM1004BH88 | BH | Key No. 88 |
| | | LKGiM1004BH89 | BH | Key No. 89 |
| | | LKGiM1004BH90 | BH | Key No. 90 |
| | | LKGiM1004BH91 | BH | Key No. 91 |
| | | LKGiM1004BH92 | BH | Key No. 92 |
| | | LKGiM1004BH93 | BH | Key No. 93 |
| | | LKGiM1004BH94 | BH | Key No. 94 |
| | | LKGiM1004BH95 | BH | Key No. 95 |
| | | LKGiM1004BH96 | BH | Key No. 96 |
| | | LKGiM1004BH97 | BH | Key No. 97 |
| | | LKGiM1004BH98 | BH | Key No. 98 |
| | | LKGiM1004BH99 | BH | Key No. 99 |
| | | LKGiM1004BH00 | BH | Key No. 100 |
| | | LKGiM1004BHA1 | BH | Key No. 101 |
| | | LKGiM1004BHA2 | BH | Key No. 102 |
| | | LKGiM1004BHA3 | BH | Key No. 103 |
| | | LKGiM1004BHA4 | BH | Key No. 104 |
| | | LKGiM1004BHA5 | BH | Key No. 105 |
| | | LKGiM1004BHA6 | BH | Key No. 106 |
| | | LKGiM1004BHA7 | BH | Key No. 107 |
| | | LKGiM1004BHA8 | BH | Key No. 108 |
| | | LKGiM1004BHA9 | BH | Key No. 109 |
| | | LKGiM1004BHA0 | BH | Key No. 110 |
| | | LKGiM1004BHB1 | BH | Key No. 111 |
| | | LKGiM1004BHB2 | BH | Key No. 112 |
| | | LKGiM1004BHB3 | BH | Key No. 113 |
| | | LKGiM1004BHB4 | BH | Key No. 114 |
| | | LKGiM1004BHB5 | BH | Key No. 115 |
| | | LKGiM1004BHB6 | BH | Key No. 116 |
| | | LKGiM1004BHB7 | BH | Key No. 117 |
| | | LKGiM1004BHB8 | BH | Key No. 118 |
| | | LKGiM1004BHB9 | BH | Key No. 119 |
| | | LKGiM1004BHB0 | BH | Key No. 120 |
| | | LKGiM1004BHC1 | BH | Key No. 121 |
| | | LKGiM1004BHC2 | BH | Key No. 122 |
| | | LKGiM1004BHC3 | BH | Key No. 123 |
| | | LKGiM1004BHC4 | BH | Key No. 124 |
| | | LKGiM1004BHC5 | BH | Key No. 125 |
| | | LKGiM1004BHC6 | BH | Key No. 126 |
| 2 | Mode key grip cover | LKGiM7126BHZZ | AX | For MA key only |
| 3 | Dripproof keyboard cover | GCOVB7109BHZZ | BF | For UP-600 only |
| 4 | Dripproof mode switch cover | GCOVB7108BHZZ | BA | |
| 5 | Text preset key cover | GCOVB7110BHSA | BG | For UP-600 only |
| 6 | 1 hole clerk kit | DKiT-8669BHZZ | BP | For UP-600 only |
| 7 | Drawer separation kit | DKiT-3409BHZZ | AP | |

## 5. SERVICE TOOLS

| No. | NAME | PARTS CODE | PRICE | DESCRIPTION |
|---|---|---|---|---|
| 1 | Service key | LKGiM7113RCZZ | AF | |
| 2 | RS232 Loop Back Connector | UKOG-6705RCZZ | BC | For RS232 D-SUB 9pin connector |
| 3 | RS232 modular Loop Back Connector | UKOG-6729BHZZ | AZ | For RS232 RJ45 Modular jack connector |
| 4 | Expansion PWB for option board | CKOG-6708RCZZ | BU | For ER-A5RS or ER-01EF |
| 5 | MCR test card | UKOG-2357RCZZ | BL | For UP-E13MR |
| 6 | Keytop remover | UKOG-6634RCZZ | AX | For UP-600 only |
| 7 | Keytop inst. jig | UKOG-6725BHZZ | BB | For 2 X 2 key top |

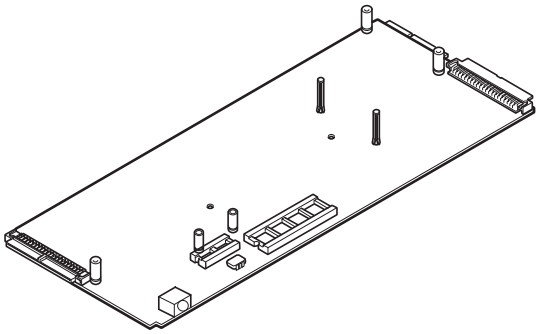
## 6. SUPPLIES

| No. | NAME | PARTS CODE | PRICE | DESCRIPTION |
|---|---|---|---|---|
| 1 | Thermal roll paper | TPAPR6656RC05 | BA | 5 Rolls / pack |
| 2 | Thermal roll paper (High preservatic type) | TPAPR6657RC05 | BD | 5 Rolls / pack |
| 3 | Key sheet (Normal key layout) | PSHEK2926BHZA | AQ | For UP-700 only |
| 4 | Key sheet (Character key layout) | PSHEK2927BHZA | AG | For UP-700 only |
| 5 | Key sheet (Blank key layout) | PSHEK2930BHZA | AG | For UP-700 only |

## 7. HOW TO USE SERVICE TOOLS

### 7-1. EXPANSION PWB : CKOG-6708RCZZ

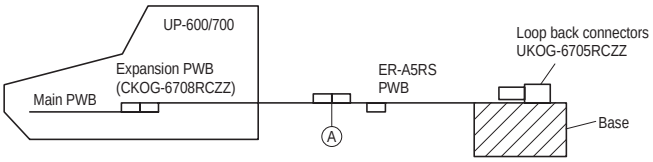
- External view



Purpose 1 : Used for servicing and repairing of options (such as the and the ER-A5RS) wich are connected with the main body option connector.

**[Procedure 1]**

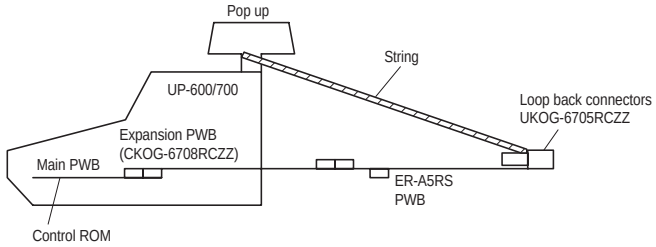
Use an insulator base as shown in shaded section and perform servicing.




To check the option I/F PWB from the solder side, connect the I/F PWB to OPTCN2. To check from the parts side, connect to OPTCN3.

(Note) The option I/F PWB should be held horizontally so that no excessive stress is applied to connecting section Ⓐ.

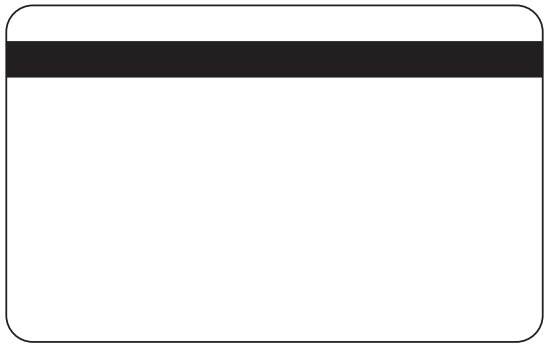
**[Procedure 2]**




Put a string between the pop up and the option PWB. Adjust the length of the string so that the CKOG-6708RCZZ and the option PWB are not binding. Then perform servicing.

### 7-2. MCR TEST CARD : UKOG-2357RCZZ

- Used when executing the diagnostics of the UP-E13MR.
- External view



# CHAPTER 3. SERVICE PRECAUTION

## 1. IPL (Initial Program Loading) FUNCTION

### 1) INTRODUCTION

The application software of the UP-600/700 written in the flash ROM. In the following cases, writing procedure of the application software into the flash ROM is required

- When the flash ROM is replaced with new one. The service part flash ROM does not include the application software in it.
- When IPL writing is required because of change in the software.

∗ The service part ofthe main PWB unit includes the flash ROM with the application software written in it, and there is no need for writing the application software when replacing the main PWB unit.

### 2) IPL PROCEDURE

There are two ways of IPL procedures.

- IPL from P-ROM
- IPL from PC communication (Please refer the next section)

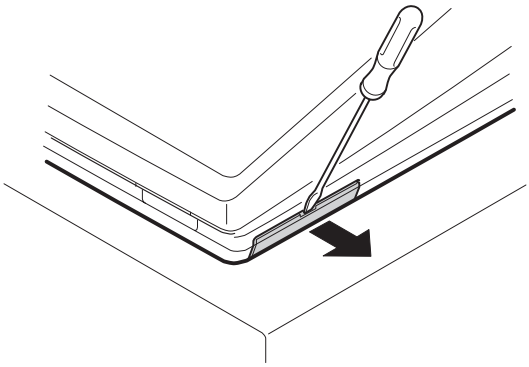
The detailed descriptions on the above procedures are given below.

### 3) IPL FROM P-ROM

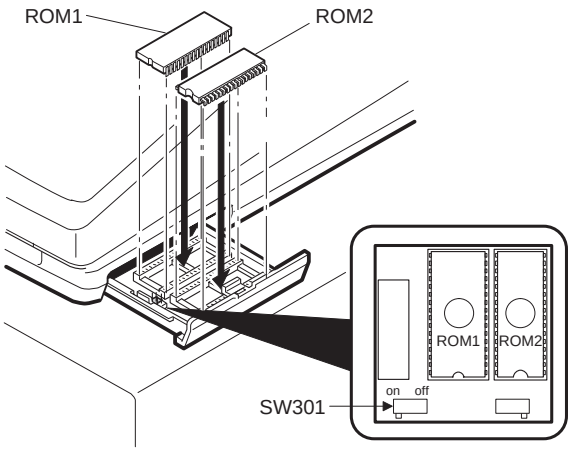
Master ROM-1 : VHI27801RAP1A
Master ROM-2 : VHI27801RAQ1A

Before working on the installation, turn off the power switch on the UP-600/700 and unplug the AC code from the AC outlet.

1. Insert a screwdriver into the slit on the right side of the lower cabinet to remove the option RAM case.



2. IPL switch (SW301) on the IPL ROM PWB: Set the IPL switch (SW301) to ON position.
3. Install to the IC sockets on the IPL ROM PWB.




4. Turn on the power switch of the UP-600/700.
5. The following display is shown and the IPL procedure is started. When the procedure is completed, the message of "Completed" is shown.

| | |
|---|---|
| IPL from PROM<br>Version check…<br>Erase … | IPL write start |
| 26 27 28 29 2A 2B<br>2C 2D 2E 2F 30 31<br>32 33 34 35 36 37<br>38 39 3A 3B 3C 3D<br>3E 3F<br>Verify …<br>Completed. | IPL write completed |

6. Turn off the power switch of UP-600/700.
7. Remove to the IC sockets on the IPL ROM PWB.
8. IPL switch (SW301) on the IPL ROM PWB: Set the IPL switch (SW301) to OFF position.
9. Perform the master reset.

# 2. UP-600/700 Utility tools

## 1) OUTLINE

This Specification document describes the explanation about "POSUTILITYTOOL.EXE and "02FD.EXE".

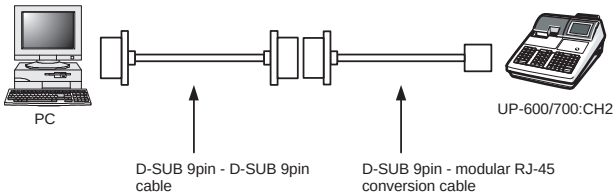
"POSUTILITYTOOL.EXE"and "02FD.EXE" works on Windows 95/98 of PC and they have the following
Functions by connecting UP-600/700 with RS232.

| | |
|---|---|
| POSUTILITYTOOL.EXE | : IPL of UP-600/700 Program Object |
| 02FD.EXE | : All RAM Data Upload/Download (PC software tool instead of the current ER-02FD.) |

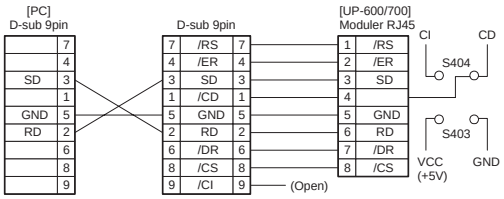
## 2) ENVIRONMENT

PC and UP-600/700 are connected by RS232.

Connect the CH2 port of the UP-600/700 to the RS-232 interface of the PC.

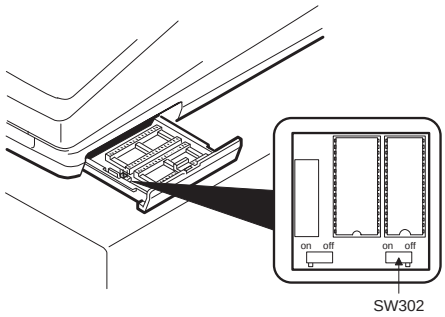
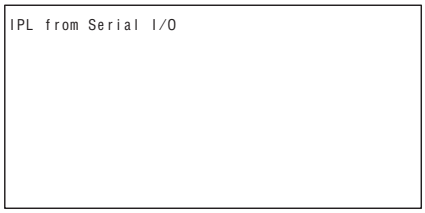


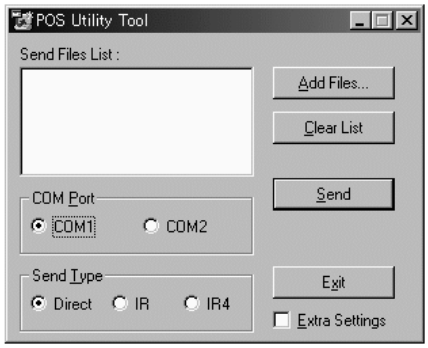
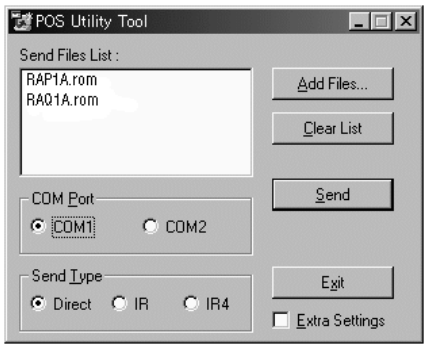
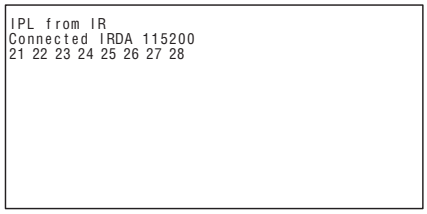
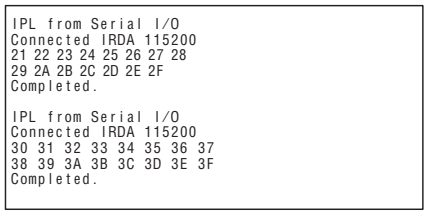

RS232 Cable Connecting:



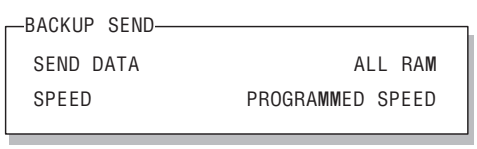
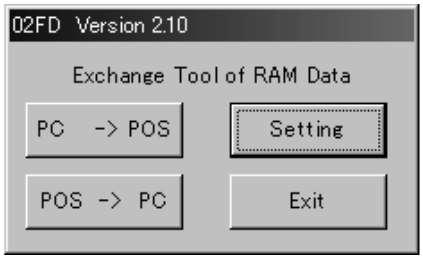
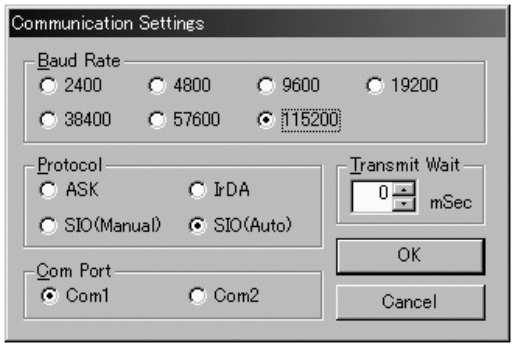
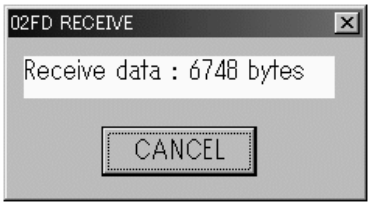
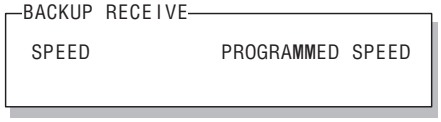

## 3) PROCEDURE

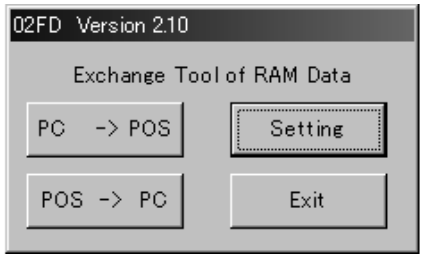
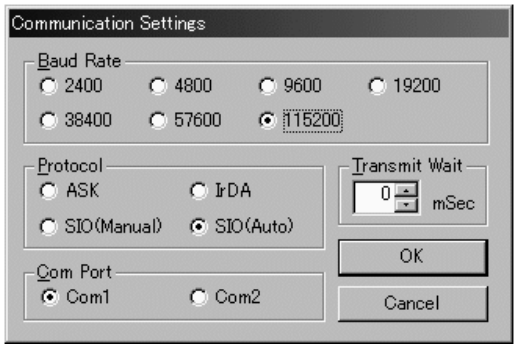
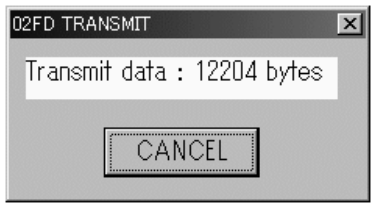
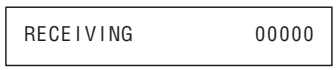
### 3) -1. POS UTILITY TOOL

| No | Procedure on P.C. side | No | Procedure on UP-600/700 side |
|---|---|---|---|
| 1 | Install "POSUTILITYTOOL.EXE" on the P.C. | | |
| | | 2 | Turn OFF the power. |
| | | 3 | Select "IPL Mode".<br>Set "IPL Switch" (SW302) of UP-600/700 to "ON".<br>  |
| | | 4 | Turn ON the power. |
| | | 5 | Starting of "IPL Mode".<br>UP-600/700 shows<br>"IPL from Serial I/O"<br>  |
| 6 | Connect P.C. and UP-600/700 (CH2) via RS232. (Fig 1) | | |

| No | Procedure on P.C. side | No | Procedure on UP-600/700 side |
|---|---|---|---|
| 7 | Execute "POSUTILITUTOOL.EXE" on P.C.<br>*Don't execute the other Software at the same time.<br>  | | |
| 8 | Select the ROM object Files by "Add Files.." button.<br>  | | |
| 9 | Push "SEND" button.<br>Program data is sent to UP-600/700 automatically.<br> | 9 | Program data is received from P.C. automatically.<br>UP-600/700 shows<br>  |
| 10 | When sending is completed,<br>the initial Window is shown after "Complete" window. | 10 | UP-600/700 shows<br>"Completed."<br>  |
| | | 11 | Turn OFF the power. |
| | | 12 | Select "Normal Mode".<br>Set "IPL switch" to "OFF".<br>(Ref. Hardware manual) |
| | | 13 | Execute "Service Reset" on UP-600/700. |

**3) -2. 02FD**

| No | Procedure on P.C. side | No | Procedure on UP-600/700 side |
|---|---|---|---|
| 1 | Install "02FD.EXE" on the P.C.<br>ALL RAM Data UpLoad : Go to "2"<br>ALL RAM Data DownLoad : Go to "9" | | |
| 2 | ALL RAM Data UpLoad<br>Connect P.C. and UP-600/700 (CH2) via RS232. (Fig 1) | 2 | Enter the SRV mode.<br>Select " 2 SETTING ".<br>Select " 14 BACKUP SEND" |
| | | 3 | UP-600/700 shows<br>  |
| 4 | Execute "02FD.EXE" on P.C.<br>*Don't execute the other Software at the same time.<br>  | | |
| 5 | Set the Communication method by "Setting" Button.<br>  <br>Push "OK" Button. | | |
| 6 | Push "Receive Start" Button.<br>And Select the Receiving File. | | |
| 7 | Communication starts.<br>  | 7 | Push TL key. UP-600/700 shows<br> |
| 8 | UpLoad is completed.<br>The initial Window is shown.<br>Push "Exit" Button. | 8 | UpLoad is completed.<br>The SETTING menu is shown. |
| 9 | ALL RAM Data UpLoad<br>Connect P.C. and UP-600/700 (CH2) via RS232. (Fig 1) | 9 | Enter the SRV mode.<br>Select " 2 SETTING".<br>Select " 15 BACKUP RECEIVE" |
| | | 10 | UP-600/700 shows<br>  <br>Push TL key. |

| No | Procedure on P.C. side | No | Procedure on UP-600/700 side |
|---|---|---|---|
| 11 | Execute "02FD.EXE" on P.C.<br>*Don't execute the other Software at the same time.<br>  | | |
| 12 | Set the Communication method by "Setting" Button.<br>  <br>Push "OK" Button. | | |
| 13 | Push "Transmit Start" Button.<br>And Select the Sending File. | | |
| 14 | Communication starts.<br>  | 14 | UP-600/700 shows<br>  |
| 15 | DownLoad is completed.<br>The initial Window is shown.<br>Push "Exit" Button. | 15 | DownLoad is completed.<br>The SETTING menu is shown. |
| | | 16 | Execute " Service Reset " on UP-600/700 |

## 3. NOTE FOR HANDLING OF LCD

- The LCD elements are made of glass. BE careful not to give them strong mechanical shock, or they may be broken. Use extreme care not to break them.
- If the LCD element is broken and the liquid is leaked, do not lick it. If the liquid is attached to your skin or cloth, immediately clean with soap.
- Use the unit under the rated conditions to prevent against damage.
- Be careful not to drop water or other liquid on the display surface.
- The reflection plate and the polarizing plate are easily scratched. BE careful not to touch them with a hard thing such as glass, tweezers. Never hit, push, or rub the surface with hard things.
- When installing the unit, be careful not to apply stress to the LCD module. If an excessive stress is applied, abnormal display or uneven color may result.

# CHAPTER 4. SRV. RESET AND MASTER RESET

The SRV key is used for operating in the SRV mode.

## 1. SRV. reset (Program Loop Reset)

Used to return the machine back to its operational state after a lock-up has occurred.

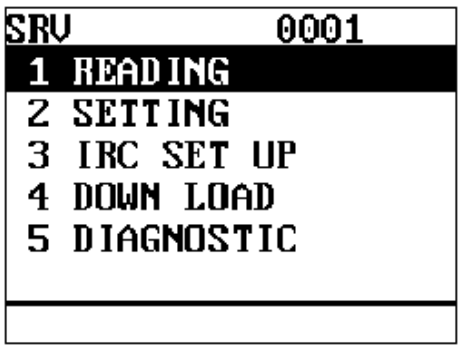
**Procedure**

- Method 1
  1) Turn off the AC switch.
  2) Set the mode switch to (SRV') position.
  3) Turn on the AC switch.
  4) Turn to (SRV) position from (SRV') position.
- Method 2
  1) Set the mode switch to PGM2 position.
  2) Turn off the AC switch.
  3) While holding down JOURNAL FEED key and RECEIPT FEED key, turn on the AC switch.

Note: When disassembling and reassembling always power up using method 1 only. Method 2 will not reset the CKDC9.

Note: SRV programming job#926-B must be set to "4" to allow PGM program loop reset.

PRG. RESET∗∗∗




## 2. Master reset (All memory clear)

There are two possible methods to perform a master reset.

- MRS-1

Used to clear all memory contents and return machine back to its initial settings.

Return keyboard back to default. for default key-board layout.

**Procedure**

1) Turn off the AC switch.
2) Set the MODE switch to the (SRV') position.
3) Turn on the AC switch.
4) While holding down JOURNAL FEED key, turn to (SRV) position from (SRV') position.

- MRS-2

Used to clear all memory and keyboard contents.

This reset returns all programming back to defaults. The keyboard must be entered by hand.

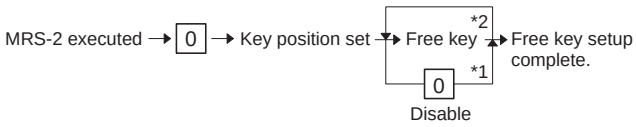
This reset is used if an application needs different keyboard layout other than that supplied by a normal MRS-1.

**Procedure**

1) Turn off the AC switch.
2) Set the MODE switch to the (SRV') position.
3) Turn on the AC switch.
4) While holding down JOURNAL FEED key and RECEIPT FEED key, turn to (SRV) position from (SRV') position.
5) Key position assignment:

∗ After the execution of MRS-2, only the RECEIPT FEED and JOURNAL FEED keys can remain effective on key assignment. Any key can be assigned on any key position on the main key-board.

[key setup procedure]




MASTER PRESET∗∗∗

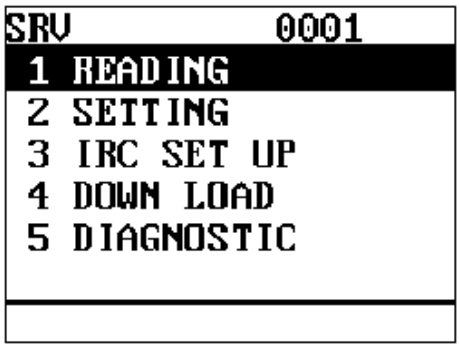
NOTES:

*1: When the 0 key is pressed, the key of the key number on display is disabled.

*2: Push the key on the position to be assigned. With this, the key of the key number on display is assigned to that key position.

*3: When relocating the keyboard, the PGM 1/2 mode use standard key layout.

| Key No. | Key name | Key No. | Key name | Key No. | Key name |
|---|---|---|---|---|---|
| 001 | "0" key | 011 | "00" key | 021 | "CANCEL" key |
| 002 | "1" key | 012 | "000" key | 022 | "ENTER" key |
| 003 | "2" key | 013 | Decimal point "." key | 023 | "TL" key |
| 004 | "3" key | 014 | "CL" key | | |
| 005 | "4" key | 015 | "(X)" key | | |
| 006 | "5" key | 016 | "ST" key | | |
| 007 | "6" key | 017 | UP "↑" key | | |
| 008 | "7" key | 018 | DOWN "↓" key | | |
| 009 | "8" key | 019 | LEFT "←" key | | |
| 010 | "9" key | 020 | RIGHT "→" key | | |



# CHAPTER 5. DIAGNOSTICS SPECIFICATIONS

## 1. GENERAL DESCRIPTION

This Diag Program consists of a number of Diag. programs for the UP-600/700, which facilitate the PWB check, process check and the operation check of the system during servicing.

The Service Diag. programs are all contained in the standard ROM.

## 2. SYSTEM COMPOSITION

UP-25X main only

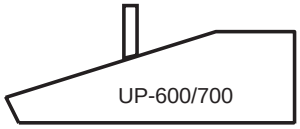



Fig 2-1. Service

## 3. DIAG.

### Starting the Diag. Program

The Diag. Program is written on the external ROM, which is executed by the CPU (H8/510) and it runs on the following conditions:

① The logic power supply is normal.
(+5V, VCKDC, POFF, +24V)

② Both the I/O pins of the CPU and the CPU internal logic are normal, and the CKDC9 and MPCA9, system bus, and standard ROM/RAM are normal.

When starting the SET for the first time, MASTER RESET the system. If you want to add any OPTION UNIT when the SET is operating normally, perform PROGRAM RESET.

### 3-1. Executing Diag Program

To start the Diag. Program, enter the SRV mode. Select the option item DIAGNOSTICS from the MENU using the cursor keys and press the ENTER key.

The DIAG. MAIN MENU appears on screen as given below. The cursor shown in reverse video can be moved using the up/down arrow keys. Move the cursor to the menu item you want and press ENTER to execute the corresponding Diag. program. When each Diag. program is completed, the screen returns to the DIAG. MAIN MENU. Pres the CANCEL key to exit the Diag. Program and the screen returns to the MENU screen in the SRV mode.

```
UP-600/700 DIAG V1.0A
PRODUCT&TEST
RAM&ROM&SSP
CLOCK&KEY&SWITCH
SERIAL I/O
DISPLAY&PRINTER
MCR&EFT&DRAWER
TCP/IP
```

The cursor moves along through the menu items by entering numbers with the numeric keypad. This allows you to reduce the number of key operations. (Example: By entering the number 7, the cursor moves to the menu item TCP/IP.) This method also applies to other SUB MENUs.

The menu item "EFT Diagnostics" are availalable only for the European market. For North America,

the this menu item (&EFT) is omitted and everything the following it moves up to compensate.

### 3-2. RAM & ROM & SSP Diagnositcs

This program tests the standard RAM, expanded RAM, standard and service ROMs, and SSp circuit. RAM&ROM&SSP is selected on the MAIN MENU, the following submenu screen appears. The cursor shown in reverse video can be moved using the up/down arrow keys. Move the cursor to the menu item you want and press the ENTER to execute the corresponding program. Press the CANCEL key to return the screen to this submenu.

```
RAM&ROM&SSP DIAG
Standard RAM Check
UP-S04MB Check
UP-S02MB Check
Standard ROM Check
Service ROM Check
SSP Check
```

#### 1) Standard RAM check

① Checking

The program performs the following checks on the standard 512KB of RAM. Data in memory remains unchanged before and after the checks.

The following operations are performed for the memory addresses to be checked (780000H - 7FFFFFH).

PASS1 : Save data in memory
PASS2 : Write data "0000H"
PASS3 : Read and compare data "0000H" and write data "5555H".
PASS4 : Read and compare data "5555H" and write data "AAAAH"
PASS5 : Read and compare data "AAAAH"
PASS6 : Return data into memory

If any comparison is not normal during the check sequence from PASS 1 through 6, the error message appears.

If any error is not found up to the final address, the sequence ends normally.

Then, another round of address checks is carried out using the above check sequence

If an error occurs, the error message appears and the check stops. The read/write of the address where the error occurs is repeated.

Check point address = 780000H, 780001H
780002H, 780004H
780008H, 780010H
780020H, 780040H
780080H, 780100H
780200H, 780400H
780800H, 781000H
782000H, 784000H
788000H, 790000H
7A0000H, 7C0000H

② Display

The capacity checked is displayed in units of 64KB.

```
Standard RAM Check
512KB:PASS!!(or ERROR!!)
Error:XXXXXXH
Write:XXXXH
Read:XXXXH
```

The error address and bit are displayed only when an error occurs (They are not displayed if there is no error.)

③ How to exit the program

You can exit the program by pressing the CANCEL key after the result of checking is displayed.

### 2) UP-S02MB Check

① Checking

The program checks for the presence of the UP-S02MB in the following procedure.

Data in memory remains unchanged before and after checking.

i. Write 55AAH in 9FFFFEH.

ii. Read 9FFFFEH and compare the data with 55AAH.If both data are correct and BFFFFEH is the same as 55AAH, perform the following tests. If not correct, the message "0KB: ERROR!!" appears and checking ends.

The following checks are performed on the UP-S02MB.

The following operations are performed for the address space to be checked (800000H - 9FFFFFH).

PASS1 : Save data in memory.
PASS2 : Write data "0000H".
PASS3 : Read and compare data "0000H" and write data "5555H".
PASS4 : Read and compare data "5555H" and write data "AAAAH".
PASS5 : Read and compare data "AAAAH".
PASS6 : Return data into memory.

If any comparison is not normal during the check sequence from PASS 1 through 6, the error message appears.

If any error is not found up to the final address, the sequence ends normally.

Then, another round of address checks is carried out using the above check sequence.

If an error occurs, the error message appears and the check stops. The read/write of the address where the error occurs is repeated.

Check point address = 800000H, 800001H
800002H, 800004H
800008H, 800010H
800020H, 800040H
800080H, 800100H
800200H, 800400H
800800H, 801000H
802000H, 804000H
808000H, 810000H
820000H, 840000H
880000H, 900000H

② Display

The capacity checked is displayed in units of 64KB.

```
UP-S02MB Check
2048KB:PASS!!(or ERROR!!)
Error:XXXXXXH
Write:XXXXH
Read:XXXXH
```

The error address and bit are displayed only when an error occurs (They are not displayed if there is no error.)

③ How to exit the program

You can exit the program by pressing the CANCEL key after the result of checking is displayed..

### 3) UP-S04MB Check

① Checking

The program checks for the presence of the UP-S04MB in the following procedure. Data in memory remains unchanged before and after checking.

i. After writing 55AAH in BFFFFEH, write AA55H in 9FFFFEH.

ii. Read BFFFFEH and compare the data with 55AAH. Data in BFFFEH is correct, the following checks are performed. Data read is AA55H, the message "UP-S02MB!!" appears and the check ends. If the data read is not either 55AAH or AA55H, the message "0KB:ERROR!!" appears and the check ends.

The following checks are performed on the UP-S04MB.

The following operations are performed for the address space to be checked (800000H - BFFFFFH).

PASS1 : Save data in memory.
PASS2 : Write data "0000H".
PASS3 : Read and compare data "0000H" and write data "5555H".
PASS4 : Read and compare data "5555H" and write data "AAAAH".
PASS5 : Read and compare data "AAAAH".
PASS6 : Return data into memory.

If any comparison is not normal during the check sequence from PASS 1 through 6, the error message appears.

If any error is not found up to the final address, the sequence ends normally.

Then, another round of address checks is carried out in the above check sequence.

If an error occurs, the error message appears and the check stops. The read/write of the address where the error occurs is repeated.

Check point address = 800000H, 800001H
800002H, 800004H
800008H, 800010H
800020H, 800040H
800080H, 800100H
800200H, 800400H
800800H, 801000H
802000H, 804000H
808000H, 810000H
820000H, 840000H
880000H, 900000H
A00000H

② Display

The capacity checked is displayed in units of 64KB.

```
UP-S04MB Check
4096KB:PASS!!(or ERROR!!)
Error:XXXXXXH
Write:XXXXH
Read:XXXXH
```

The error address and bit are displayed only when an error occurs (They are not displayed if there is no error.)

③ How to exit the program

You can exit the program by pressing the CANCEL key after the result of checking is displayed.

### 4) Standard ROM Check

① Checking

The standard ROM area (200000H - 3FFFFFH) is added in units of bytes. The lowest 2 digits of the result is 20H, it is regarded as normal.

In addition, the ROM version and model name code stored in the addresses 31FFE0H - 31FFFFH where the ROM version and checksum correction data are stored are displayed. Data (ASCII) is stored in the following formats:

31FFE0H~31FFEFH : Model name CODE (Example: "UP-600", to be displayed until DATA becomes 00H.)

31FFF0H~31FFF9H : 27801R****(****=PROGRAM VERSION)

31FFFAH~31FFFBH : BLOCK NO.("20"~"3F")

31FFFCH : TERMINATOR ("=")

31FFFDH~31FFFEH : BLOCK VERSION (Example: "00")

31FFFFH : CHECK SUM correction DATA

FLASH ROM used as the standard ROM has 64K-byte-unit rewrite BLOCKs. To perform VERSION management in the BLOCK unit, these BLOCKs have the same 16 byte organization as those after the previous 31FFF0H and arranged every 64KBYTE. At this time, the checksum for each BLOCK is corrected to be 01H so that the entire 2MBYTE become a total of 20H.

Regarding the display of the PROGRAM VERSION, the FLASH write MASTER EPROM has 2-chip 8 Mbits to allow manage in units of chip. The PROGRAM VERSION stored in blocks at 21H and 31H are displayed.

0 PAGE (BLOCK) where IPL is stored displays the PROGRAM VERSION of IPL to make it possible to manage individual programs.

② Display

The capacity checked is displayed in units of 64KB.

```
Service ROM Check
PASS!!(or ERROR!!)
APL: 27801R****
       27801R****
IPL:**
```

③ JOURNAL print

```
BLOCK Version.
20=** 21=** 22=** 23=**
24=** 25=** 26=** 27=**
. . . . . .
3C=** 3D=** 3E=** 3F=**
```

③ How to exit the program

④ You can exit the program by pressing the CANCEL key after the result of checking is displayed.

### 5) SERVICE ROM Check

① Checking

The SERVICE ROM area composed of two EPROMs (D00000H - EFFFFFH) is added in units of bytes for each chip. If the lowest 2 digits are 10H, it is regarded as normal.

In addition, the ROM version and model name code stored in the addresses D1FFE0H - D1FFFFH where the ROM version and checksum correction data are stored are displayed. Data (ASCII) is stored in the following formats:

D1FFE0H~D1FFEFH : Model name CODE(Example: "UP-600", to be displayed until data is 00H.)

D1FFF0H~D1FFF9H : 27801R****(****=PROGRAM VERSION)

D1FFFAH~D1FFFBH : BLOCK NO.("20"~"2F")

D1FFFCH : TERMINATOR("=")

D1FFFDH~D1FFFEH : BLOCK VERSION(Example:"00")

D1FFFFH : CHECK SUM correction DATA

This SERVICE ROM is used to write data into FLASH ROM if any error occurs during rewriting FLASH ROM and it is not possible to resume the operation. Its configuration is the same as the standard ROM.

0 PAGE (BLOCK) where IPL is stored displays the PROGRAM VERSION of IPL to make it possible to manage individual programs.

② Display

The capacity checked is displayed in units of 64KB.

```
Service ROM Check
ROM1:PASS!!(or ERROR!!)
ROM2:PASS!!(or ERROR!!)
APL: 27801R****
       27801R****
IPL:**
```

③ JOURNAL print

```
BLOCK Version.
20=** 21=** 22=** 23=**
24=** 25=** 26=** 27=**
. . . . . .
3C=** 3D=** 3E=** 3F=**
```

④ How to exit the program

You can exit the program by pressing the CANCEL key after the result of checking is displayed.

### 6) SSP Check

① Checking

When started, this check program automatically sets the test SSP, performs SSP check and displays the check result.

The SSP check sets check data in the empty space in the SSP entry register. After checking is completed, only the check data is erased. Any setting remains intact before and after this check program is executed.

② Display

```
SSP Check
PASS!!(or ERROR!!)
```

③ How to exit the program

You can exit the program by pressing the CANCEL key after the result of checking is displayed.

## 3-3. Timer & Keyboard & Clerk Switch Diagnostics

This program checks the operation of the CKDC's clock crystal, key-board and tests the clerk switch and mode switch.

You can return to the Diag menu screen by pressing the CANCEL key.

```
Timer&Key&Clerk DIAG
YY/MM/DD&HH:MM:SS
KEY CODE=***
CLERK CODE=***
MODE SWITCH=* (0~7,E:Intermediate position,
                F:Multiple ERROR)
```

### 1) Timer Check

① Checking

Check the operation of the CKDC9's clock crystal.

The area showing "YY/MM/DD & MM:HH" is continuously displayed. Check whether the display blinks in black and white every 0.5 seconds and the time shown is updated.

### 2) Keyboard Check

① Checking

The program check the input through the keyboard of the UP-600/700.

A 3-digit position code corresponding to a key pressed appears on screen, along with a catch sound.

### 3) Clerk SW Check

① Checking

The code of the key inserted into the clerk key switch appears in a decimal number.

### 4) Mode Switch Check

① Checking

The mode switch position code is displayed in a hexadecimal number.

SRV:0, PGM2:1, PGM1:2, OFF:E, OP X/Z:3, REG:4, MGR:5, X1/Z1:6, X2/Z2:7

Intermediate code:E, Multiple error F

## 3-4. RS232 I/F Diagnostics

The program tests the RS232 interface for the main PWB and the optional board ER-A5RS. Attach a 9-pin D-sub loop back connector (UKOG-6717RCZZ) wired as shown in Fig. 3-11, to the port you are going to test.

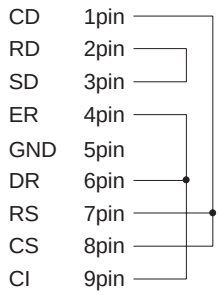



Fig. 3-11. Wiring diagram of loop back connector (UKOG-6717RCZZ)

The following menu appears on screen. The cursor shown in reverse video can be moved using the up/down arrow keys. Move the cursor to the menu item you want to execute and select by pressing the Enter key to the corresponding Diag. Program. Press the CANCEL key to return the screen to this submenu.

When setting the channel for the RS232 interface, do not set more than two ports to the same channel. The UP-600/700 accommodates up to one ER-A5RS board, but use caution not to allow each port to have the same channel; otherwise hardware might be destroyed.

```
RS232 I/F DIAG
CH1 Check
CH3 Check
CH4 Check
CH8 Check
```

When Diag. Is started, channel check is performed and only the channels already set appear on screen.

### 1) CHANNEL Check

① Checking

The screen shows only the channels for which the channels of the RS232 connect to the ECR. Compare the channels shown on screen and the settings of channel setting DIPSW on the RS232 interface board.

The RS232 on the main PWB of the UP-600/700 is fixed to CH1 and CH8. It is therefore necessary for the ER-A5RS to set the channel to any of CH2 - CH7.

(Ref) ER-A5RS channel settings ("1" = SW OFF, "0" = SW ON)

**ER-A5RS CON3**

| S1-1 | S1-2 | S1-3 | CHANNEL |
|---|---|---|---|
| 0 | 0 | 0 | Disabled |
| 0 | 0 | 1 | No setting allowed (Standard RS) |
| 0 | 1 | 0 | CHANNEL 2 |
| 0 | 1 | 1 | CHANNEL 3 |
| 1 | 0 | 0 | CHANNEL 4 |
| 1 | 0 | 1 | CHANNEL 5 |
| 1 | 1 | 0 | CHANNEL 6 |
| 1 | 1 | 1 | CHANNEL 7 |

**ER-A5RS CON4**

| S1-4 | S1-5 | S1-6 | CHANNEL |
|---|---|---|---|
| 0 | 0 | 0 | Disabled |
| 0 | 0 | 1 | No setting is allowed (Standard RS) |
| 0 | 1 | 0 | CHANNEL 2 |
| 0 | 1 | 1 | CHANNEL 3 |
| 1 | 0 | 0 | CHANNEL 4 |
| 1 | 0 | 1 | CHANNEL 5 |
| 1 | 1 | 0 | CHANNEL 6 |
| 1 | 1 | 1 | CHANNEL 7 |

② How to exit the program

Press the CANCEL key to exit the program.

### 2) CH1 Check

① Checking

If any channel is not set, the error message (ERROR: CH1) appears. When any channel is set, the following checks are performed.

i. Control signal check

| ERn | RSn | DRn | Cin | CDn | CSn |
|---|---|---|---|---|---|
| OFF | OFF | OFF | OFF | OFF | OFF |
| OFF | ON | OFF | OFF | ON | ON |
| ON | OFF | ON | ON | OFF | OFF |
| ON | ON | ON | ON | ON | ON |

The program performs the read checks of the above inputs and interrupt checks of CS, CI, and CD.

During the read check, ER and RS are changed over in the above order, checking the logic of DR, CI, CD and CS.

If the check result does not agree with the logic in the table, the error message appears. The ON in the table means active low and the OFF means active high.

In the interrupt check, the CS, CI and CD interrupts are permitted one by one (The mask is canceled.).

The error message appears if an interrupt does not occur when each signal is active or if an interrupt occurs when each signal is not active.

Four cycles of the above check is performed.

ii. Data transfer check

As check data, loop back data transfer of 256 bytes of 00H - 0FFH is performed. The baud rate is 38400 bp.

iii. TIMER CHECK (RS232 ON BOARD TIMER)

Before starting the check ii, perform the RCVDT start of the timer you want to check and set to 5 ms. Make sure::

- No TRQ- is generated during the implementation of check ii.
- TRQ- is generated at 5 ms after check ii is completed.

② Display

RS232 CH1 Check
PASS!!(or ERROR!!)

All the details of errors are printed on the journal.

| ERROR No. | ERROR print | Details of ERROR |
|---|---|---|
| 1 | ER-DR : ERROR | ER-DR LOOP ERROR |
| 2 | ER-CI : ERROR | ER-CI LOOP ERROR |
| 3 | RS-CD : ERROR | RS-CD LOOP ERROR |
| 4 | RS-CS : ERROR | RS-CS LOOP ERROR |
| 5 | CI INT : ERROR | No CI interrupt occurs. |
| 6 | CD INT : ERROR | No CD interrupt occurs. |
| 7 | CS INT : ERROR | No CD interrupt occurs. |
| 8 | TXEMP : ERROR | TXEMP is not set. |
| 9 | TXEMP INT : ERROR | TXEMP interrupt does not occur. |
| 10 | TXRDY : ERROR | TXRDY is not set. |
| 11 | TXRDY INT : ERROR | TXRDY interrupt does not occur. |
| 12 | RCVRDY : ERROR | RCVRDY is not set. (Not possible to receive. TRQ- occurs during the implementation of check ii.) |
| 13 | RCVRDY INT : ERROR | RCVRDY interrupt does not occur. |
| 14 | SD-RD : ERROR | SD-RD LOOP ERROR (DATA ERROR) |
| 15 | SD-RD : ERROR | SD-RD LOOP ERROR (DATA ERROR) |
| 16 | TIMER : ERROR | TIMER ERROR (After check ii is completed) |
| 17 | TIMER INT : ERROR | TRQ1- interrupt does not occur. |

③ How to exit the program

Press the CANCEL key to exit the program.

### 3) CH2 Check

① Checking

The procedure for checking, display and the method of exiting the programs are the same as for CH1 check.

### 4) CH3 Check

① Checking

The procedure for checking, display and the method of exiting the program are the same as for CH1 check.

### 5) CH4 Check

① Checking

The procedure for checking, display and the method of exiting the program are the same as for CH1 check.

### 6) CH5 Check

① Checking

The procedure for checking, display and the mothod of exiting the programs are the same as for CH1 check.

### 7) CH6 Check

① Checking

The procedure for checking, display and the method of exiting the programs are the same as for CH1 check.

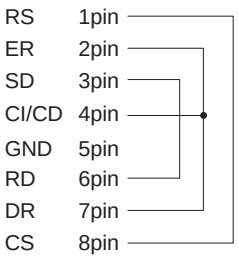
### 8) CH7 Check

① Checking

The procedure for checking, display and the method of exiting the programs are the same as for CH1 check.

### 9) CH8 Check

For checking CH8, the following loop-back connectors are used.




① Checking

When channels are set, the following checks are performed.

i. Control signal check

| ER8 | RS8 | DR8 | Ci8 | CD8 | CS8 |
|---|---|---|---|---|---|
| OFF | OFF | OFF | OFF | OFF | OFF |
| OFF | ON | OFF | ** | ** | ON |
| ON | OFF | ON | ** | ** | OFF |
| ON | ON | ON | ** | ** | ON |

The program performs the read checks of the above inputs.

During the read check, ER and RS are changed over in the above order, checking the logic of DR, CI, CD and CS.

If the logic is different from those listed in the table, the error message appears. For logics marked with "**" the display appears like the tables given below.

PETTERN 1

| ER8 | RS8 | CI8 | CD8 |
|---|---|---|---|
| OFF | ON | OFF | OFF |
| ON | OFF | OFF | OFF |
| ON | ON | OFF | OFF |

"No Connect" is displayed on the next line of PASS!!.

PETTERN 2

| ER8 | RS8 | CI8 | CD8 |
|---|---|---|---|
| OFF | ON | OFF | OFF |
| ON | OFF | ON | OFF |
| ON | ON | ON | OFF |

"CI Connect is displayed on the next line of PASS!!

PETTERN 3

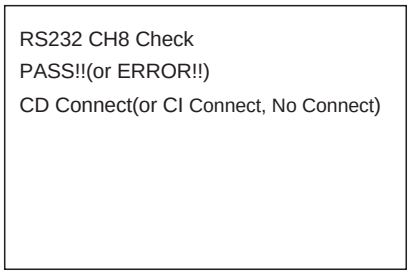
| ER8 | RS8 | CI8 | CD8 |
|---|---|---|---|
| OFF | ON | OFF | OFF |
| ON | OFF | OFF | ON |
| ON | ON | OFF | ON |

"CD Connect! is displayed on the next line of PASS!!
If the logic is different from those in PATTERN 1 - 3, the error message appears.
ON means active low and OFF active high.
The above checks are repeated four cycles.

ii. Data transfer check

As check data, loop back data transfer of 256 bytes of 00H - 0FFH is performed. The baud rate is set for115200 bp..

② Display




All the details of errors are printed on the journal.

| ERROR No. | ERROR print | Details of ERROR |
|---|---|---|
| 1 | ER-DR : ERROR | ER-DR LOOP ERROR |
| 2 | ER-CI : ERROR | ER-CI LOOP ERROR |
| 3 | RS-CD : ERROR | RS-CD LOOP ERROR |
| 4 | RS-CS : ERROR | RS-CS LOOP ERROR |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | TXEMP : ERROR | TXEMP is not set. |
| 9 | TXEMP INT : ERROR | TXEMP interrupt does not occur. |
| 10 | TXRDY : ERROR | TXRDY is not set. |
| 11 | TXRDY INT : ERROR | TXRDY interrupt does not occur. |

| ERROR No. | ERROR print | Details of ERROR |
|---|---|---|
| 12 | RCVRDY : ERROR | RCVRDY is not set.<br>(Not possible to receive. TRQ- occurs during the implementation of check ii.) |
| 13 | RCVRDY INT : ERROR | RCVRDY interrupt does not occur. |
| 14 | SD-RD : ERROR | SD-RD LOOP ERROR<br>(DATA ERROR) |
| 15 | SD-RD : ERROR | SD-RD LOOP ERROR<br>(DATA ERROR, FRAMING ERROR, and others) |
| 16 | | |
| 17 | | |
| 18 | CI : ERROR | The logic of C1 is ON, but different from those in 1~3. |
| 19 | CD : ERROR | The logic of CD is ON, but different from those in 1~3. |

③ How to exit the program.
Press the CANCEL key to exit the program.

## 3-5. LCD/Popup/Pole Display & PRINTER Diagnostics

The program tests the LCD and popup and pole displays of the UP-600/700.

The following menu appears on screen. The cursor shown in reverse video can be moved using the up/down arrow keys. Move the cursor to the menu item you want to execute and select by pressing the Enter key to execute the corresponding Diag. program. You can return the screen to this submenu by pressing the CANCEL key.

```
DISPLAY&PRINTER DIAG
LCD Check
POPUP Check
POLE Check
PRINTER Check
PRINTER CG Check
PES&NES SENSOR Check
A/D CONVERTER Check
```

The test program displays the following test patterns in the order shown below. You can move to the next pattern by pressing the ENTER key.

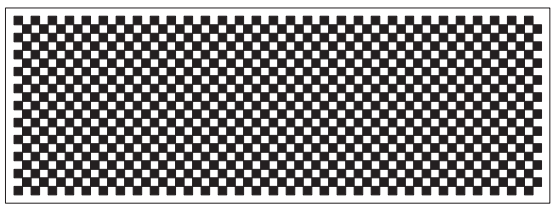
You can return the screen to this submenu by pressing the ENTER key when the final test pattern is shown on screen or by pressing the CANCEL key during the implementation of the check.

### 1) Liquid Crystal Display Check

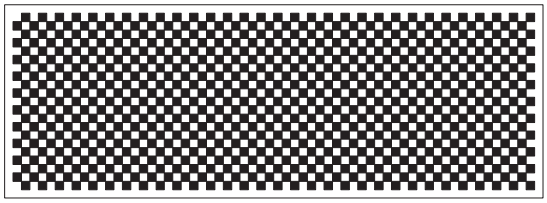
① Checking

The screen shows the following test patterns. Press the ENTER key to move to the next test pattern.

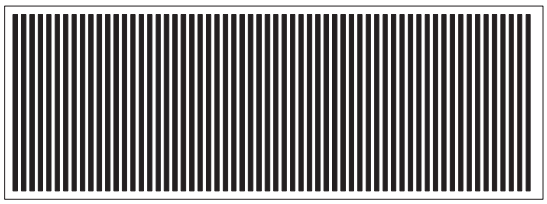
i. Black and white checkered pattern with 1-dot spacing.



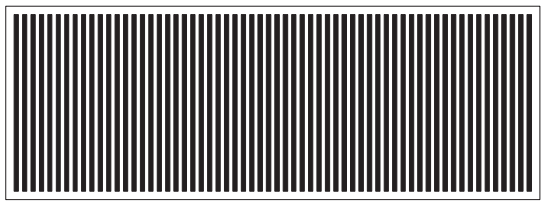
ii. Reverse-videoed test pattern of i



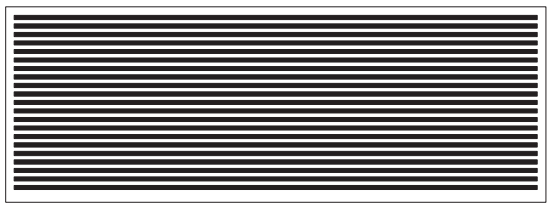
iii. Vertical stripe pattern with 1-dot spacing



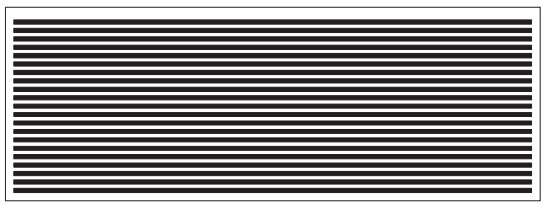
iv. Reverse-videoed test pattern of iii



v. Horizontal stripe pattern with 1-dot spacing



vi. Reserve-videoed test pattern of v



vii. The outermost periphery of LCD's active area is displayed in 1-dot line.

viii. "H" pattern. "H" is displayed in 20 digits and 8 lines.
"H" is displayed in 19 digits only in the 8th line.

```
HHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
HHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
HHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
HHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
HHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
HHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
HHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
HHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
HHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
HHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
HHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
```

③ How to exit the program.

You can exit the program by pressing the ENTER key when the final test pattern is shown on screen or by pressing the CANCEL key during checking.

### 2) Pole Display Check

① Checking

The screen shows the following test patterns in the order given below. Press ENTER to move to the next pattern.

i. The following test patterns are displayed.

DOT DISPLAY : 0 1 2 3 4 5 6 7 8 9 ; A a B b C

7SEG DISPLAY : 0. 1. 2. 3. 4. 5. 6. 7. 8. 9. -.

ii. The test pattern where all digits are turned ON is displayed.

② Display

POLE Display Check

③ How to exit the program.

You can return to the Diag. submenu by pressing the ENTER key after the 2nd test pattern where all digits are turned ON has been displayed. Or press the CANCEL key to erase the screen to exit the program.

### 3) Popup Display Check

① Checking

The screen shows the following test patterns in the order given below. Press ENTER to move to the next pattern.

i. The following test patterns are displayed.

7SEG DISPLAY : 0. 1. 2. 3. 4. 5. 6.

ii. The test pattern where all digits are turned ON is displayed.

② Display

POPUP Display Check

③ How to exit the program

You can return to the Diag. submenu by pressing the ENTER key after the 2nd test pattern where all digits are turned ON has been displayed. Or press the CANCEL key to erase the screen to exit the program.

### 4) PRINTER Check

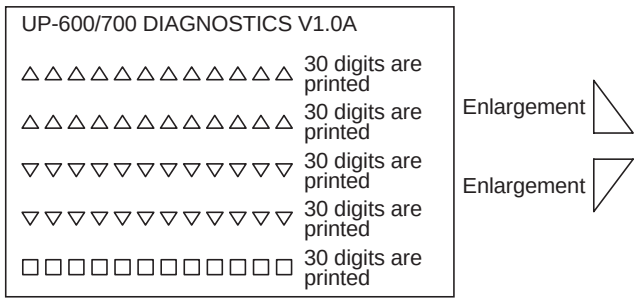
① Checking

The printer prints on the RECEIPT/JOURNAL PRINTER.

② Display

PRINTER Check

③ JOURNAL/RECEIPT print




④ How to exit the program

One second after printing is completed, the screen returns to the PRINTER Check of the DISPLAY & PRINTER MENU.

### 5) PRINTER CG Check

① Checking

The printer prints the built-in CG onto the RECEIPT/JOURNAL PRINTER.

For standard characters are printed in 16 characters/line and extended ASCII characters (enlarged characters) are printed in 8 characters/line.

The standard characters are printed first, followed by the extended ASCII characters.

Check the outputted print to see if CG is correctly printed.

② Display

PRINTER CG Check

③ How to exit the program.

Press the CANCEL key to exit the program after 1 cycle of printing is performed.

### 6) PES & NES SENSOR Check

① Checking

The screen displays the operating status of the paper end sensor and paper near end sensor of the receipt/journal printer.

② Display

```
PES&NES SENSOR Check
NES : 0   (or 1)
RPES : 0   (or 1)
JPES : 0   (or 1)
OPBS : 0   (or 1)
```

| Display | Status | Description |
|---|---|---|
| NES | 0 | Senses the near end of the journal paper roll. |
| | 1 | Does not sense the near end of the journal paper roll. |
| RPES | 0 | Senses the end of the receipt paper roll. |
| | 1 | Does not sense the end of the receipt paper roll. |
| JPES | 0 | Senses the end of the journal paper roll. |
| | 1 | Does not sense the end of the journal paper roll. |
| OPBS | 0 | IPL ROM PWB connected |
| | 1 | IPL ROM PWB not connected |

③ How to exit the program

Press the CANCEL key to exit the program.

### 7) A/D CONVERTOR Check

① Checking

The screen displays the digitally converted values of the signals in turns that have been inputted into the CPU's A/D converter. The values are updated at an interval of about 1 second by the timer.

② Display

```
A/D CONVERTER Check
TM=***
VRF=***
VP=***
```

(Note 1) : The VRF means an estimated VRF voltage on the assumption that VCC is +5 V.

(Note 2) : *** means 10-bit data of the A/D converter expressed in hexadecimal numbers.

Therefore, the values range from "000" to "3FF".

③ How to exit the program.

Press the CANCEL key to exit the program.

## 3-6. TCP/IP STACK Network Diagnostics

The program performs the TCP/IP stack test.
The test requirements are as follows:

- UP-600/700
- 10BASE-T cable (for data transfer testing)
- HUB (for loop back test and data transfer test where more than 2 units of satellites are used.)

The following menu appears. The cursor shown in reverse video can be moved using the up/down arrow keys. Move the cursor to the menu item you want to execute and press the ENTER key to execute the corresponding check program. After the said Diag. program is completed, the screen returns to this menu.

Press the CANCEL key to return the screen to the Diag. submenu.

```
TCP/IP&PRINTER DIAG
SELF Check
LOOPBACK Check
MAC ADDR&FIRM Ver. Read
MAC ADDR&FIRM WRITE
DATA Trans.(MA)
DATA Trans.(SA)
```

### 1) SELF Check

① Checking

The program executes Diag's built in the TCP/IP stack board and displays the results.

i. Execute the flash memory test command and display the result.

ii. Execute the SRAM test command and displays the result.

iii. Execute the dual-port RAM test and displays the result.

iv. Execute the interrupt test command and displays the result.

The information inside the error status is as follows:

| | |
|---|---|
| b7 | Reserved ("0" is always displayed) |
| b6 | Reserved ( "0" is always displayed) |
| b5 | Reserved ("0" is always displayed) |
| b4 | Reserved ( "0" is always displayed) |
| b3 | HR_RST : If /INTHR cannot be canceled |
| b2 | HR_ACK:If /INTHR does not enter after waiting for 10 ms |
| b1 | HW_RST : If /INTHW cannot be canceled |
| b0 | Reserved ("0" is always displayed) |

② Display

```
SELF Check
FLASH : PASS (or ERROR)
SRAM : PASS (or ERROR)
XXXXXXXX : XX :  XX        <- When an error occurs, the address and data are displayed.
DPRAM : PASS (or ERROR)
XXXXXXXX : XX :  XX        <- When an error occurs, the address and data are displayed.
INTERRUPT : PASS (or ERROR)
XXXXXXXX                   <- When an error occurs, the data is displayed.
```

③ How to exit the program.

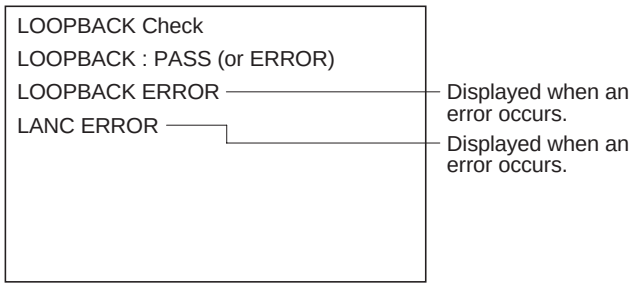
Press the CANCEL key to exit the program.

### 2) LOOPBACK Check

① Checking

Install a straight cable between the RJ45 connector and the HUB and execute the loop back test command to send and receive 1 packet of data.

② Display




③ How to exit the program

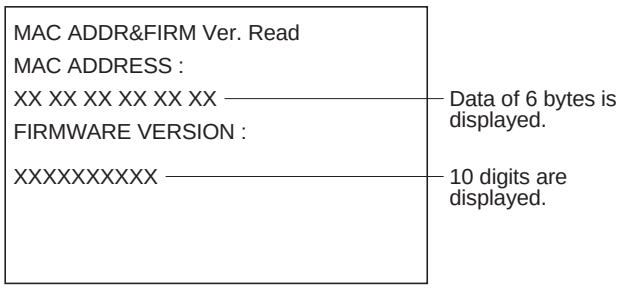
Press the CANCEL key to exit the program.

### 3) MAC ADDRESS&FIRM Ver. read Check

① Checking

The program reads the version of the MAC address and firmware and displays the result.

② Display




③ How to exit the program

Press the CANCEL key to exit the program.

### 4) MAC ADDRESS&FIRM write UTILITY

① Operation

This utility writes MAC address and firmware.
(Procedure)

Install EPROM on the TCP/IP board and turn the IPL switch on the board to the "program write mode."

Connect the board to the ECR and turn on the ECR.

The IPL program on the TCP/IP board starts.

Input 3 sets of 3-digit decimal numbers through the keyboard of the ECR and press the ENTER key.

Following the SHARP maker code (08, 00, 1F), the 3 sets of numbers input through the keyboard are converted into hexadecimal numbers. The program then writes a total of 6 bytes MAC address into dual port RAM (800000H - ).

Turn off the power supply and remove the TCP/IP board from the ECR.

Remove EPROM from the TCP/IP board and turn the IPL switch to the "normal mode."

Connect the board to the ECR and turn on the ECR.

Input : DUAL PORT RAM (800000H')

| 08 | 00 | 1F | XX | YY | ZZ | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

MAC ADDRESS (XX, YY, ZZ are converted to 16 hexadecimal numbers.)

Output : DUAL PORT RAM(800800H')

During writing

| I | P | L | | 0 | 0 | — | 0 | 7 | | | | | 0 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

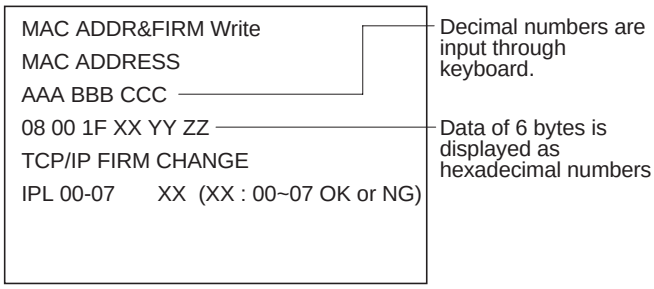
When writing is completed(The same applies when copy is skipped at the first verification.)

| I | P | L | | 0 | 0 | — | 0 | 7 | | | | | O | K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

When writing process ends with an error.

| I | P | L | | 0 | 0 | — | 0 | 7 | | | | | N | G |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

② Display


MAC ADDR&FIRM Write
MAC ADDRESS
AAA BBB CCC
08 00 1F XX YY ZZ
TCP/IP FIRM CHANGE
IPL 00-07 XX (XX : 00~07 OK or NG)
Decimal numbers are input through keyboard.
Data of 6 bytes is displayed as hexadecimal numbers

TCP/IP FIRM CHANGE :

A | ERASE 00-07 00 |

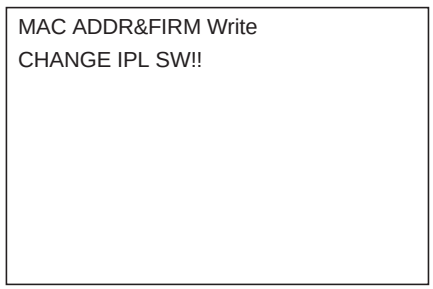
B | COPY 00-05 00 |

C | FIRM CHANGE PASS!! |

While the address and firmware are being rewritten, the message A and then B appears.

When the address and firmware have been rewritten, the message C is displayed.

The following screen appears when the IPL switch is not turned to the write mode.




③ How to exit the program.

Press the CANCEL key to exit the program.

∗ After rewriting, make sure to turn the power off and then turn it on again.

### 5) Data Transmission Check

The program performs a data transfer test using an actually established system.

The system consists of 1 master machine and up to 31 satellite machines.
Caution to be taken when starting the test.

- If this test is performed on the ECRs set for LAN, cancel the settings before starting the test.
- If this test is performed using an established system, disconnect the LAN cables from the ECRs you do not want to test or cancel their LAN settings. If the test is performed with those ECRs set for LAN, their data might be destroyed.
- After canceling the LAN settings of all ECRs on the system, set them for data transfer test.
  Set the satellite machines first, and then set the master machine.
- The Diag of the UP-600/700 uses a private IP address. Each IP address is unique on the Internet. When building a private network, you should be careful not to allow your internal packet used for your own network to leak to the Internet, because it might cause a confusion. The Internet Assigned Numbers Authority (IANA) specifies IP addresses that can be used without registration. These addresses can only be used within a private network and are not route controlled between sites of the Internet.

  Class A : 10.x.x.x
  Class B : 172.16.x.x 172.31.x.x
  Class C : 192.168.0.x?192.168.255.x

  It is strongly recommended to use addresses within the above range when building a private network.

  In this Diag. program, the following private IP addresses are assigned to the terminal Nos. (0 - 31).

  TERMINAL NO.1 = 192.168.0.1

  TERMINAL NO.2 = 192.168.0.2

  .....

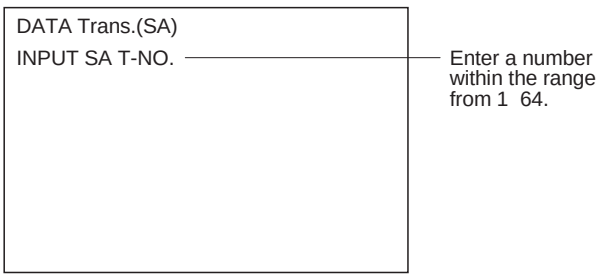
  TERMINAL NO.31 = 192.168.0.31

  TERMINAL NO.32 = 192.168.0.32

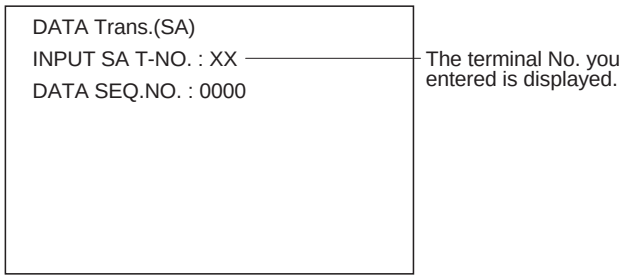
① Setting

i. Setting satellite machines

On the menu screen, select DATA Trans. (SA). The screen looks like this:

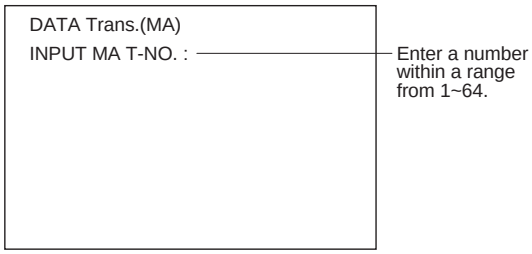



Enter the terminal No. of the machine you are going to test (a 2-digit number from 1 - 32) + Enter. The screen looks like this:

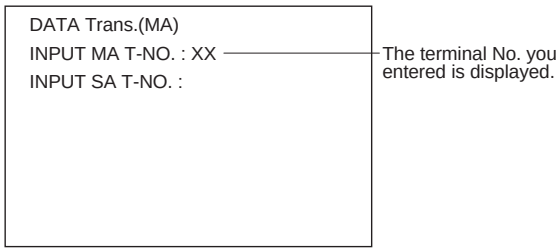



i. Setting master machine.

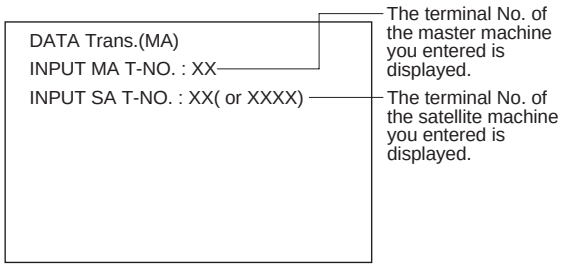
On the menu screen, select DATA Trans. (MA). The screen looks like this:



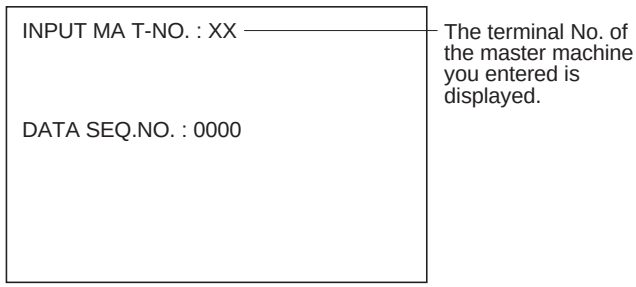

Enter the terminal No. of the machine you want to test (a 2-digit number from 1 - 64)+ Enter. The screen looks like this:




Enter the terminal No. (a 2-digit number from 1 -64) of the satellite machine which is to be connected to the test machine + Enter. The screen looks like this:


DATA Trans.(MA)
INPUT MA T-NO. : XX
INPUT SA T-NO. : XX( or XXXX)
The terminal No. of the master machine you entered is displayed.
The terminal No. of the satellite machine you entered is displayed.

When performing the test with multiple satellite machines, type their terminal numbers (2-digit numbers within the range from 1~64) and press Enter. In addition, you specify the satellite machines using the area specification function without typing terminal numbers. This is achieved by typing the first terminal number (2 digits) and the last terminal number (2 digits) of the satellite machines and then press Enter. For example, if you want to specify the terminal numbers of satellite machines from 5 to 15, type "0515" for T-No. and press Enter.
When executing, press the Enter key only without typing the terminal numbers.
The display appears like this:
Note that the terminal numbers of the master machine and satellite machines should not be the same. When the terminal numbers are to be specified using the area specification function, any terminal number that is used for the master machine will be excluded from the specification of satellite machine terminal numbers.




With the above setting, data transfer is performed between the master machine and the satellite machines.

② Checking

i. The master machine sends data of the following format consisting of 2-byte sequence No. and 254-byte AAH data to the satellite machine. The master machine displays the sequence Nos.

Test data format (1 packet: 256 bytes)

| 1 | 2 | 3 | 4 | 5 | ••• | ••• | ••• | 254 | 255 | 256 | byte |
|---|---|---|---|---|---|---|---|---|---|---|---|
| XX | XX | AA | AA | AA | ••• | ••• | ••• | AA | AA | AA | |

XXXX : Sequence No. 2 bytes (4-digit binary coded decimal number)

AA : Transfer (AAH) ~ 254 bytes

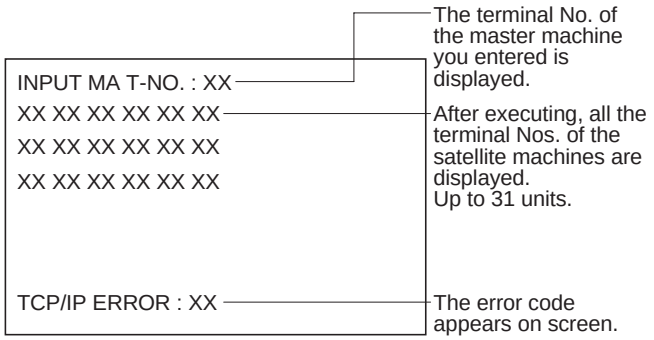
ii. The satellite machine returns the data it has received, to the master machine as it is. The satellite machine displays the sequence No. on the screen.

iii. The master machine receives the data and then checks the sequence Nos. and 254-byte AAH data. If an error occurs, the master machine displays an error code and ends the test. If there are multiple satellite machines, steps i and ii are repeated.

The master machine advances the sequence No. when data is transferred successfully between it and the satellite machines.

Steps i - iii are repeated.

③ Error display


INPUT MA T-NO. : XX
XX XX XX XX XX XX
XX XX XX XX XX XX
XX XX XX XX XX XX
TCP/IP ERROR : XX
The terminal No. of the master machine you entered is displayed.
After executing, all the terminal Nos. of the satellite machines are displayed.
Up to 31 units.
The error code appears on screen.

The following error codes are used(same as for TCP/IP HANDLER)

| | |
|---|---|
| 01 | Command error (excluding the time when data is sent) |
| 02 | No data received |
| 03 | Received data size present<br>Received data left |
| 04 | Receiving station not ready for receiving (when sending)<br>"NRDY" is returned because the receiving station is not ready for receiving. |
| 05 | Receiving buffer full(when sending)<br>The receiving side's controller receive buffer is full. |
| 06 | Resend error(When sending)<br>The number of retries exceeds the setting (5 times) when no response is obtained. |
| 07 | Collision error (When sending)<br>If a collision occurs |
| 08 | Line busy time out<br>Data cannot be sent due to multiple stations communicating |
| 09 | Receiving data size over (when receiving)<br>Insufficient size of receiving buffer. |
| 0A | Hardware error<br>Interface error (No SRN interface or defective SRN controller) |

③ How to exit the program
Press the CANCEL key to exit the program.

## 3-7. EFT & MCR & DRAWER Diagnostics

The program checks the EFT(ER-01EF)and MCR and drawer.

The following menu appears on screen.

The cursor shown in reverse video can be moved using the up/down arrow keys. Move the cursor to the menu item you want to execute and select by pressing the ENTER key to execute the corresponding program. Press the CANCEL key to return the screen to this sub-menu.

```
EFT&MCR&DRAWER Check
EFT Check
MCR Check
DRAWER 1 Check
DRAWER 2 Check
```

### 1) EFT Check

Select the EFT Diag on the menu and turn the power off.

```
EFT Check
```

Set all DIPSW1 on the ER-01EF to OFF. Turn the power ON, and the program automatically starts the EFT check.

① Checking

(i) For the EFT connector, the loop back test is performed on ER-DRAER-CI and RS-CS.

(ii) Turn on the switches 1 - 8 of the DIPSW1 one by one to check them for operation.

(iii) If they operate normally, the sum check is performed on EFT ROM and write/read check on RAM.

② JOURNAL print(When ending normally)

```
DIAG0 (SELF TEST)     :OK
VHI27040R**1*         :OK
256K SRAM             :OK
```

③ JOURNAL print(when not ending normally)

```
In Loop Back Error
  ER-DR LOOP ERROR
  ER-CI LOOP ERROR
  RS-CS LOOP ERROR
In Self Test Error
  DIP SW ERROR
In Self Test Error
  VHI27040R**1*       :ERROR
  256K SRAM           :ERROR
```

④ Display

```
EFT Check
```

⑤ How to exit the program

Press the CANCEL key to exit the program.

### 2) Magnetic Card Reader Check

The program performs the read test of an optional UP-E13MR.

The test program reads a magnet card of the ISO7811/1-5 standard and prints data on the journal.

Press the CANCEL key to return the screen to submenu.

① Checking

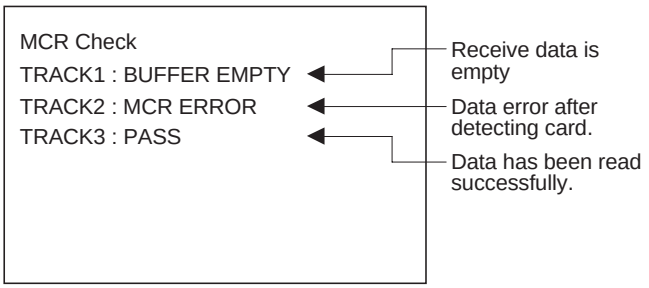
The program reads tracks 1 - 3 of a magnet card of the ISO7811/1'5 standard and prints data with the ASCII codes.

② JOURNAL print

```
MCR Check
TRACK1:
XXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXX
TRACK2:
XXXXXXXXXXXXXXXXXXXXXXXXXXXX
TRACK3:
XXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

Data read by the MCR is printed in the areas XXXXX. If an error occurs, the following error codes are displayed. Until the program is terminated, the error code is repeated, standing by for reading.

③ Display




④ How to exit the program.

Press the CANCEL key to exit the program.

### 3) Drawer 1 Check

① Checking

The program turns on the drawer 1 solenoid, senses the value of the drawer open sensor every 100 ms, and displays the operating status.

② Display

```
DRAWER 1 Check

Open Sensor : OPEN  (or CLOSE)
```

③ How to exit the program

Press the CANCEL key to exit the program.

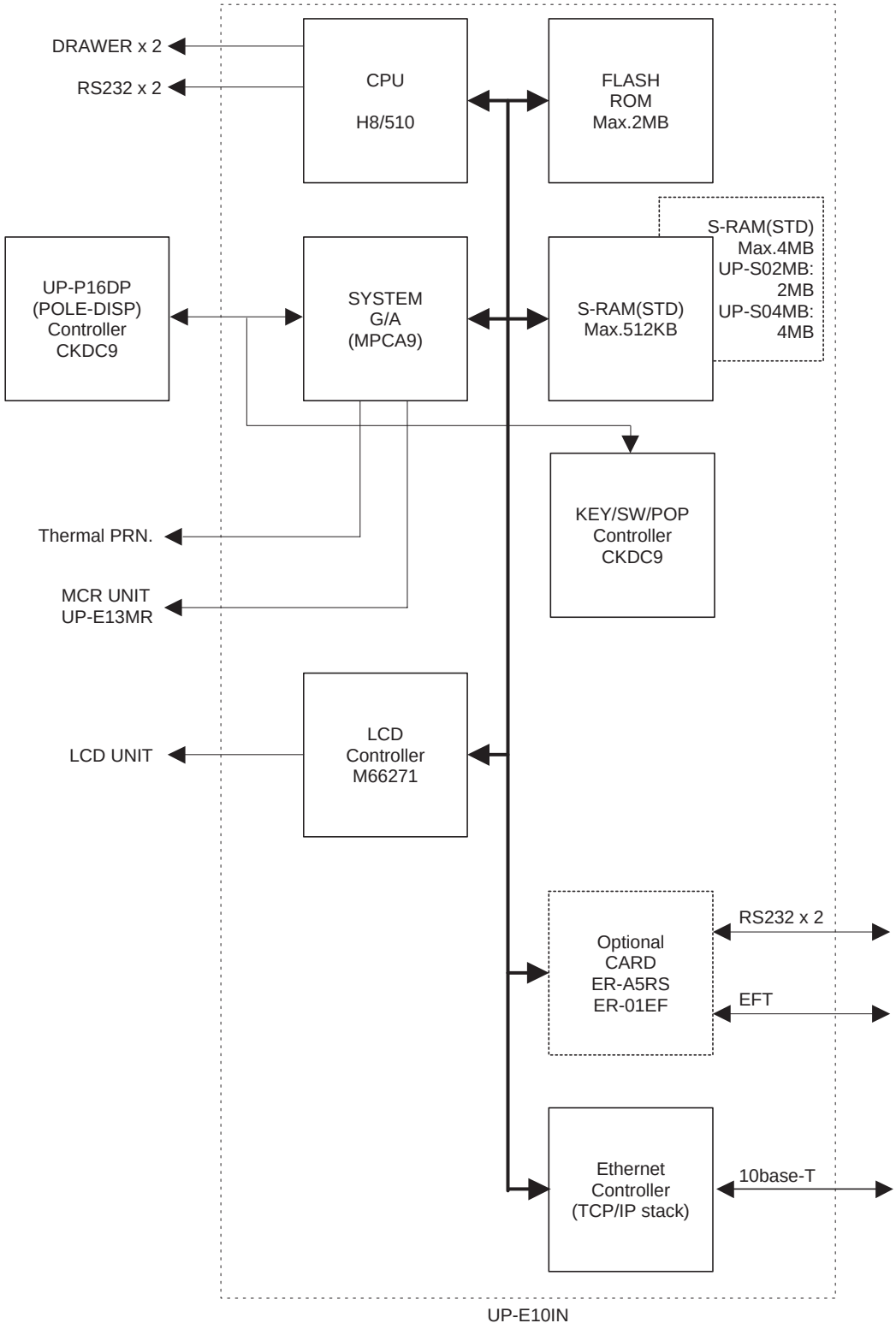
### 4) Drawer 2 Check

① Checking

The program turns on the drawer 2 solenoid, senses the value of the drawer 2open sensor every 100 ms, and displays the operating status. The procedure for displaying the menu and exiting the program are the same as for the drawer 1 check.

# CHAPTER 6. CIRCUIT DESCRIPTION

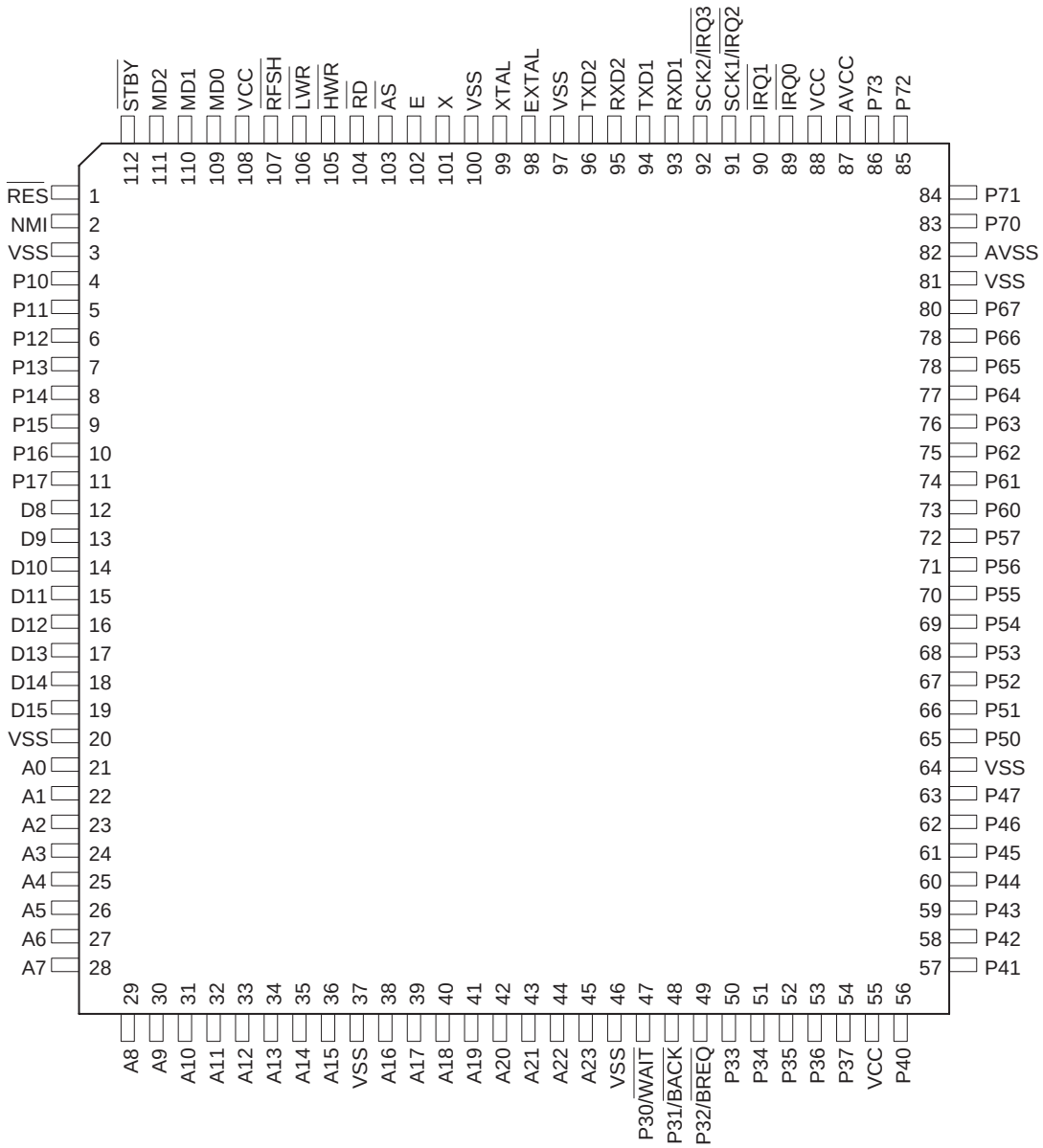
## 1. Hardware block diagram



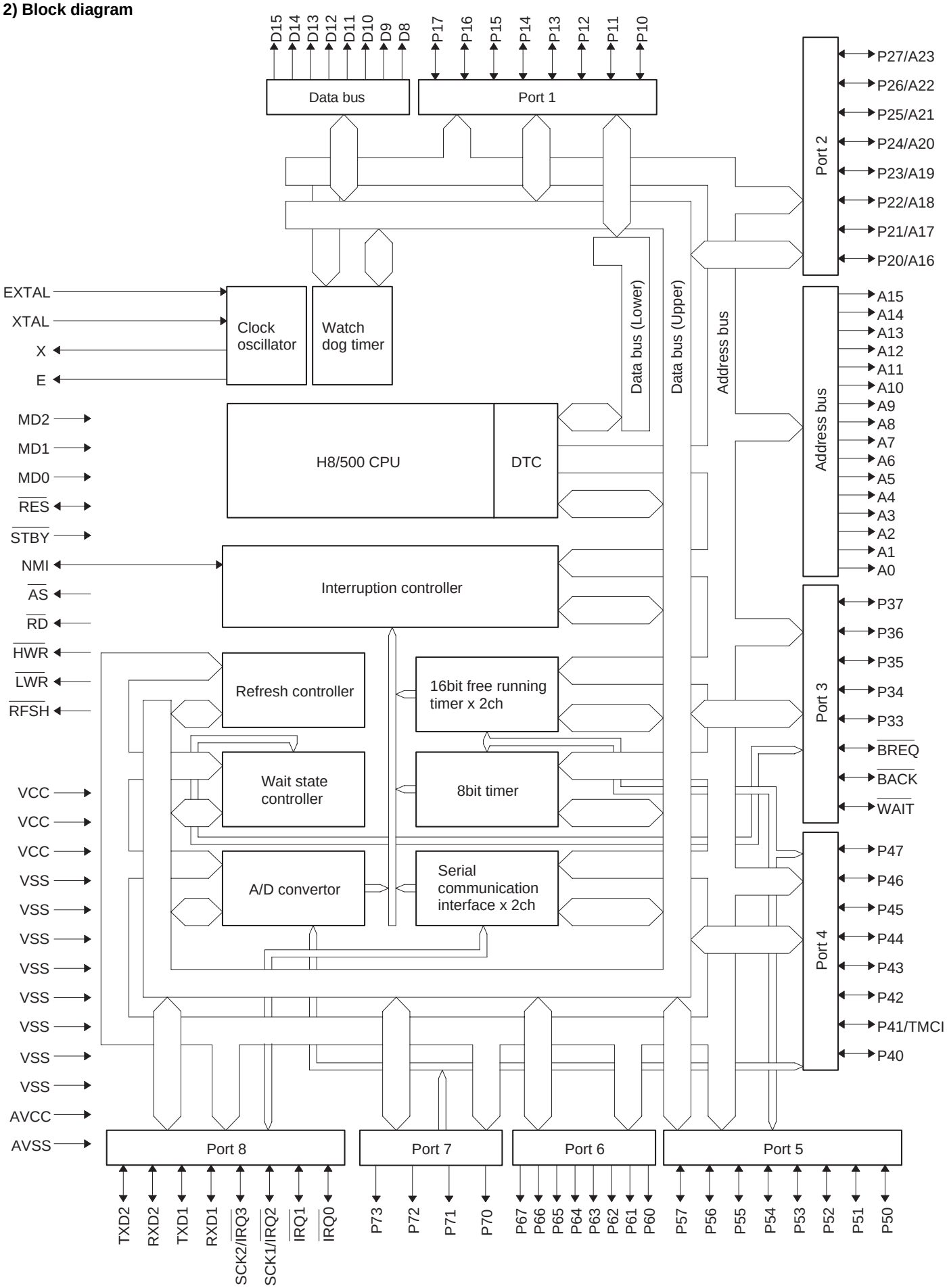
# 2. Description of main LSI's

## 2-1. CPU (HD6415108FX)

### 1) Pin description



**2) Block diagram**



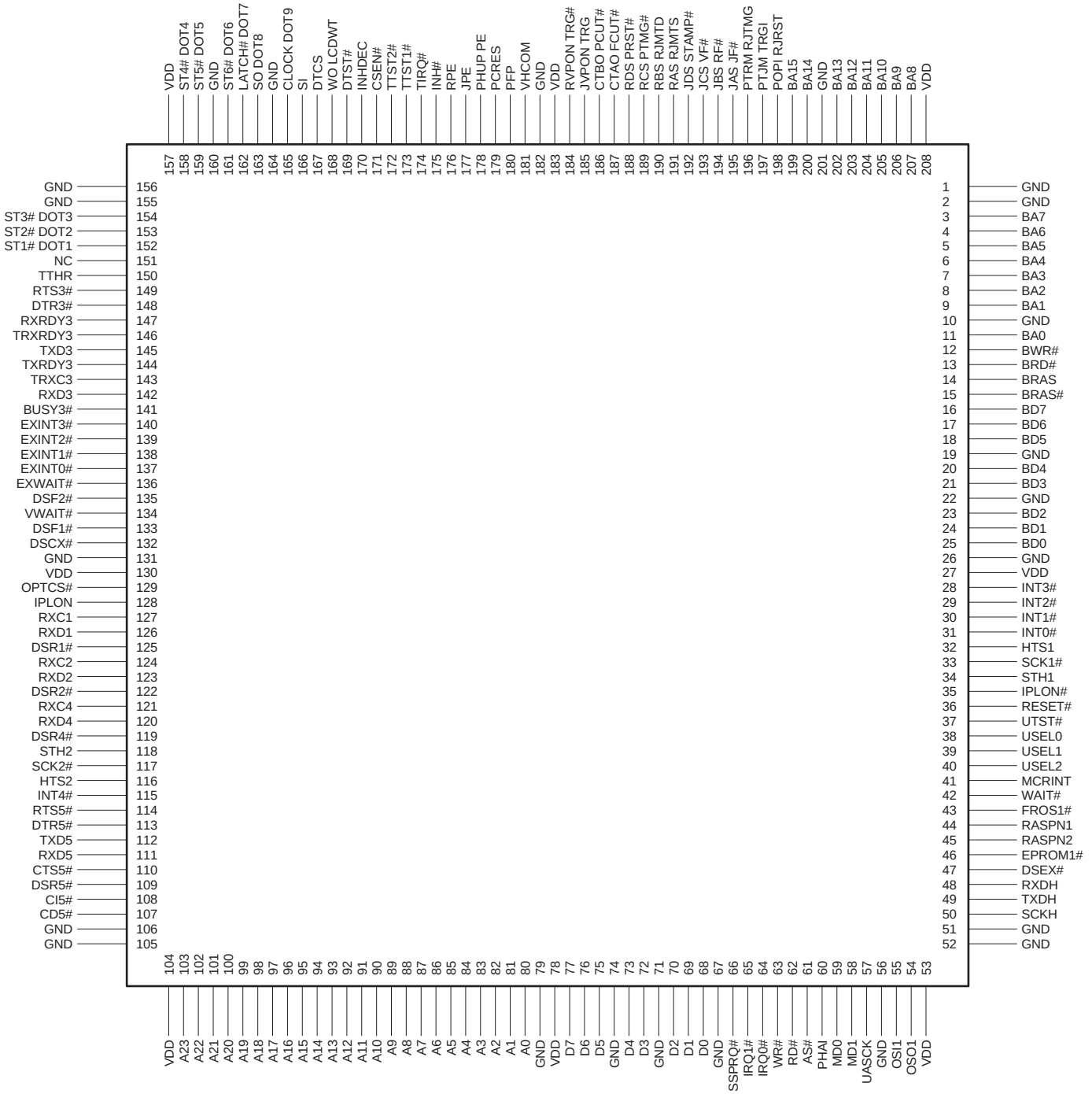
### 3) Pin description

| Pin No. | Symbol | Signal name | In/ Out | Function |
|---|---|---|---|---|
| 1 | /RES | /RESET | In | Reset signal |
| 2 | NMI | NMI | In | Non-maskable interrupt input for SSP interrupt input. |
| 3 | VSS | GND | In | GND |
| 4 | D0 | D0 | I/O | Data bus |
| 5 | D1 | D1 | I/O | Data bus |
| 6 | D2 | D2 | I/O | Data bus |
| 7 | D3 | D3 | I/O | Data bus |
| 8 | D4 | D4 | I/O | Data bus |
| 9 | D5 | D5 | I/O | Data bus |
| 10 | D6 | D6 | I/O | Data bus |
| 11 | D7 | D7 | I/O | Data bus |
| 12 | D8 | D8 | I/O | Data bus |
| 13 | D9 | D9 | I/O | Data bus |
| 14 | D10 | D10 | I/O | Data bus |
| 15 | D11 | D11 | I/O | Data bus |
| 16 | D12 | D12 | I/O | Data bus |
| 17 | D13 | D13 | I/O | Data bus |
| 18 | D14 | D14 | I/O | Data bus |
| 19 | D15 | D15 | I/O | Data bus |
| 20 | VSS | GND | In | GND |
| 21 | A0 | A0 | Out | Address bus |
| 22 | A1 | A1 | Out | Address bus |
| 23 | A2 | A2 | Out | Address bus |
| 24 | A3 | A3 | Out | Address bus |
| 25 | A4 | A4 | Out | Address bus |
| 26 | A5 | A5 | Out | Address bus |
| 27 | A6 | A6 | Out | Address bus |
| 28 | A7 | A7 | Out | Address bus |
| 29 | A8 | A8 | Out | Address bus |
| 30 | A9 | A9 | Out | Address bus |
| 31 | A10 | A10 | Out | Address bus |
| 32 | A11 | A11 | Out | Address bus |
| 33 | A12 | A12 | Out | Address bus |
| 34 | A13 | A13 | Out | Address bus |
| 35 | A14 | A14 | Out | Address bus |
| 36 | A15 | A15 | Out | Address bus |
| 37 | VSS | GND | In | GND |
| 38 | A16 | A16 | Out | Address bus |
| 39 | A17 | A17 | Out | Address bus |
| 40 | A18 | A18 | Out | Address bus |
| 41 | A19 | A19 | Out | Address bus |
| 42 | A20 | A20 | Out | Address bus |
| 43 | A21 | A21 | Out | Address bus |
| 44 | A22 | A22 | Out | Address bus |
| 45 | A23 | A23 | Out | Address bus |
| 46 | VSS | GND | In | GND |
| 47 | P30 | /WAIT | In | Wait signal |
| 48 | P31 | /BACK | Out | Bus control request acknowledge signal |
| 49 | P32 | /BREQ | In | Bus control request signal |
| 50 | P33 | DOPS | In | Drawer open signal |
| 51 | P34 | /DR0 | Out | Option drawer open signal |
| 52 | P35 | /DR1 | Out | Option drawer open signal |
| 53 | P36 | NC | NC | NC |
| 54 | P37 | NC | NC | NC |
| 55 | VCC | VCC | In | +5V |
| 56 | P40 | VCC | In | +5V |
| 57 | P41 | GND | In | GND |
| 58 | P42 | GND | In | GND |

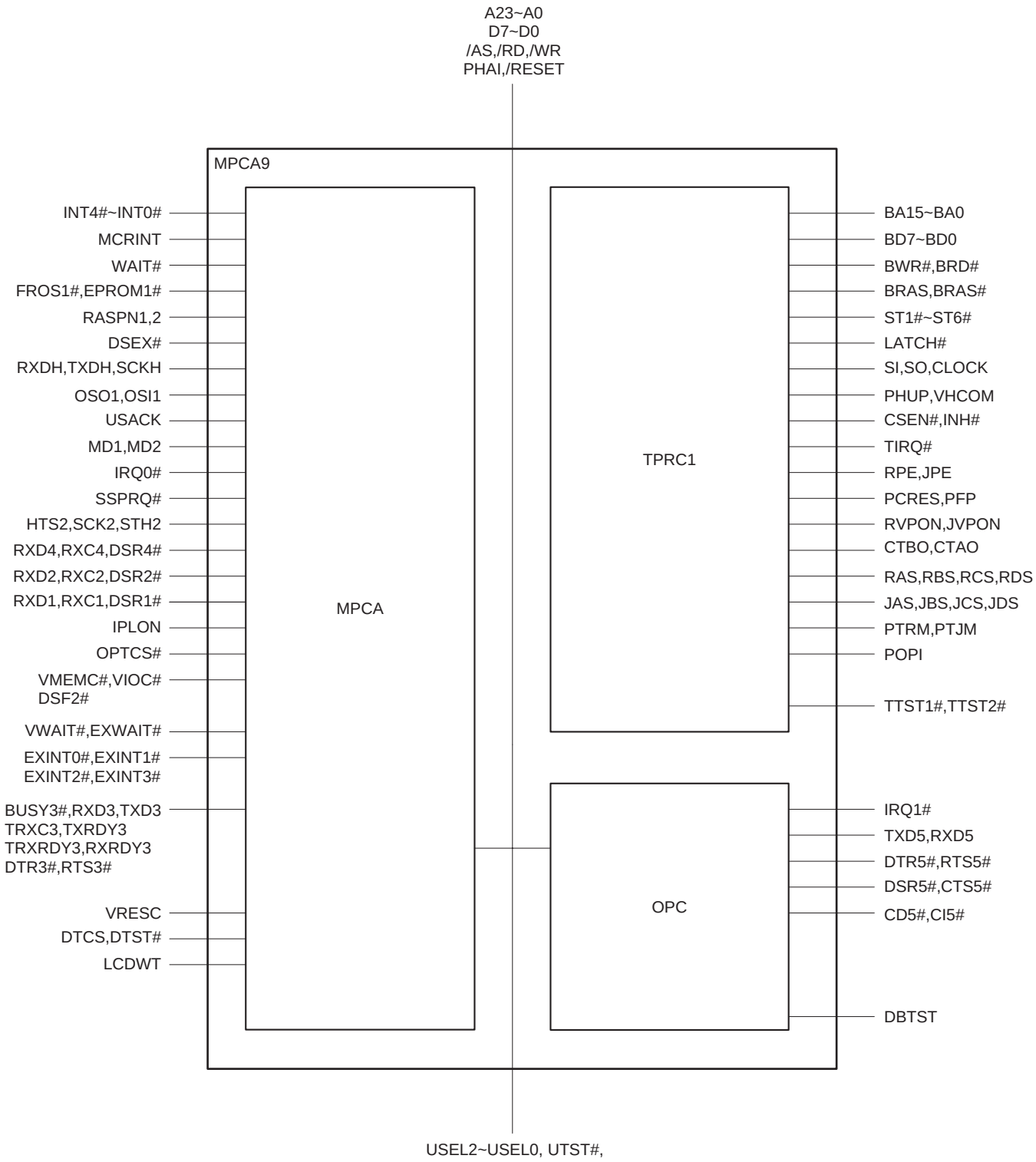
| Pin No. | Symbol | Signal name | In/ Out | Function |
|---|---|---|---|---|
| 59 | P43 | GND | In | GND |
| 60 | P44 | MCRINT | In | MCR interrupt signal |
| 61 | P45 | GND | In | GND |
| 62 | P46 | /SHEN | In | CKDC interface shift enable signal |
| 63 | P47 | GND | In | GND |
| 64 | VSS | GND | In | GND |
| 65 | P50 | – | Out | /DTR2 : Data Terminal Ready2 |
| 66 | P51 | – | In | /DSR2 : Data Set Ready2 |
| 67 | P52 | – | In | /CTS2 : Clear To Send2 |
| 68 | P53 | – | In | /DCD2 : Carriar Detect2 |
| 69 | P54 | – | In | NC |
| 70 | P55 | NC | Out | /RTS2:Request To Send2 |
| 71 | P56 | – | In | /CI2:Calling Indicator2 |
| 72 | P57 | /STOP | Out | System reset output signal |
| 73 | P60 | /IPLON0 | In | From IPL SW |
| 74 | P61 | /IPLON1 | In | From IPL SW |
| 75 | P62 | GND | In | GND |
| 76 | P63 | NORDY | In | Flash Memory ready ("H" active) |
| 77 | P64 | FVPON | Out | Flash Memory write protect ("L" active) |
| 78 | P65 | BANK | Out | For IPL ROM |
| 79 | P66 | GND | In | GND |
| 80 | P67 | GND | In | GND |
| 81 | VSS | GND | In | GND |
| 82 | AVSS | GND | In | GND |
| 83 | P70 | GND | In | GND |
| 84 | P71 | GND | In | GND |
| 85 | P72 | GND | In | GND |
| 86 | P73 | GND | In | GND |
| 87 | AVCC | VCC | In | +5V |
| 88 | VCC | VCC | In | +5V |
| 89 | /IRQ0 | /IRQ0 | In | Interrupt signal 0 |
| 90 | /IRQ1 | /IRQ1 | In | Interrupt signal 1 |
| 91 | /IRQ2 | UASCK | In | Synchronizing shift clock signal for USART |
| 92 | /IRQ3 | SCKI | Out | CKDC interface synchronizing shift clock |
| 93 | RXD1 | /RCVDT2 | In | RXD signal for RS232 |
| 94 | TXD1 | TXD2 | Out | TXD signal for RS232 |
| 95 | RXD2 | RXDI | In | CKDC interface shift input data |
| 96 | TXD2 | TXDI | Out | CKDC interface shift output data |
| 97 | VSS | GND | In | GND |
| 98 | EXTAL | EXTAL | In | Crystal oscillator connection 19.6MHz |
| 99 | XTAL | XTAL | In | Crystal oscillator connection 19.6MHz |
| 100 | VSS | GND | In | GND |
| 101 | X | # | Out | System clock |
| 102 | E | NC | NC | NC |
| 103 | /AS | /AS | Out | Address strobe |
| 104 | RD | /RD | Out | Read signal |
| 105 | /HWR | /HWR | Out | Write signal (HIGH) |
| 106 | /LWR | /LWR | Out | Write signal (LOW) |
| 107 | /RFSH | /RFSH | Out | Refresh cycle signal |
| 108 | VCC | VCC | In | +5V |
| 109 | MD0 | IPLON0 | In | From IPL SW |
| 110 | MD1 | IPLON0 | In | From IPL SW |
| 111 | MD2 | /IPLON0 | In | From IPL SW |
| 112 | /STBY | VCC | In | +5V |

## 2-2. G.A.(MPCA9)

### 1) Pin configuration



**2) Block diagram**



### 3) Pin description

| Pin No. | Name | IN/OUT | Description |
|---|---|---|---|
| 1 | GND | - | GND |
| 2 | GND | - | GND |
| 3 | BA7 | O | Address bus 7 for PB-RAM |
| 4 | BA6 | O | Address bus 6 for PB-RAM |
| 5 | BA5 | O | Address bus 5 for PB-RAM |
| 6 | BA4 | O | Address bus 4 for PB-RAM |
| 7 | BA3 | O | Address bus 3 for PB-RAM |
| 8 | BA2 | O | Address bus 2 for PB-RAM |
| 9 | BA1 | O | Address bus 1 for PB-RAM |
| 10 | GND | - | GND |
| 11 | BA0 | O | Address bus 0 for PB-RAM |
| 12 | BWR# | O | PB-RAM write strobe signal |
| 13 | BRD# | O | PB-RAM read strobe signal |
| 14 | BRAS | O | PB-RAM chip select : Active High (NU) |
| 15 | BRAS# | O | PB-RAM chip select : Active Low |
| 16 | BD7 | I/O | Data Bus 7 for PB-RAM |
| 17 | BD6 | I/O | Data Bus 6 for PB-RAM |
| 18 | BD5 | I/O | Data Bus 5 for PB-RAM |
| 19 | GND | - | GND |
| 20 | BD4 | I/O | Data Bus 4 for PB-RAM |
| 21 | BD3 | I/O | Data Bus 3 for PB-RAM |
| 22 | GND | - | GND |
| 23 | BD2 | I/O | Data Bus 2 for PB-RAM |
| 24 | BD1 | I/O | Data Bus 1 for PB-RAM |
| 25 | BD0 | I/O | Data Bus 0 for PB-RAM |
| 26 | GND | - | GND |
| 27 | VDD | - | +3.3V |
| 28 | INT3# | I | Interrupt signal 3 (NU) |
| 29 | INT2# | I | Shift enable for CKDC9 |
| 30 | INT1# | I | Keyboard request for CKDC9 |
| 31 | INT0# | I | Power off signal input |
| 32 | HTS1 | O | 8 bit serial port output (for CKDC9) |
| 33 | SCK1# | O | Serial port shift clock output (for CKDC9) |
| 34 | STH1 | I | 8 bit serial port input (for CKDC9) |
| 35 | IPLON# | I | IPL switch 0 ON signal |
| 36 | RESET# | I | MPCA reset |
| 37 | UTST# | I | MPCA test pin (+3.3V) |
| 38 | USEL0 | I | MPCA test pin (GND) |
| 39 | USEL1 | I | MPCA test pin (GND) |
| 40 | USEL2 | I | MPCA test pin (GND) |
| 41 | MCRINT | O | MCR interrupt signal |
| 42 | WAIT# | O | Wait request signal |
| 43 | FROS1# | O | Flash ROM 1 chip select signal |
| 44 | RASPN1 | O | RAM 1 chip select signal |
| 45 | RASPN2 | O | RAM 2 chip select signal |
| 46 | EPROM1# | O | EP-ROM 1 chip select signal |
| 47 | DSEX# | O | EP-ROM 2 chip select signal |
| 48 | RXDH | O | 8 bit serial port output to CPU |
| 49 | TXDH | I | 8 bit serial port input from CPU |
| 50 | SCKH | I | Serial port shift clock input from CPU |
| 51 | GND | - | GND |
| 52 | GND | - | GND |
| 53 | VDD | - | +3.3V |
| 54 | OSO1 | O | System clock (7.37MHz) |

| Pin No. | Name | IN/OUT | Description |
|---|---|---|---|
| 55 | OSI1 | I | System clock (7.37MHz) |
| 56 | GND | - | GND |
| 57 | UASCK | O | USAT clock to CPU |
| 58 | MD1 | I | MPCA test pin (GND) |
| 59 | MD0 | I | MPCA test pin (GND) |
| 60 | PHAI | I | System clock (9.83MHz) |
| 61 | AS# | I | Address strobe |
| 62 | RD# | I | Read Strobe |
| 63 | WR# | I | Write Strobe |
| 64 | IRQ0# | O | Interrupt request 0 to CPU |
| 65 | IRQ1# | O | Interrupt request 1 to CPU |
| 66 | SSPRQ# | O | SSP interrupt request to CPU |
| 67 | GND | - | GND |
| 68 | D0 | I/O | Data Bus 0 |
| 69 | D1 | I/O | Data Bus 1 |
| 70 | D2 | I/O | Data Bus 2 |
| 71 | GND | - | GND |
| 72 | D3 | I/O | Data Bus 3 |
| 73 | D4 | I/O | Data Bus 4 |
| 74 | GND | - | GND |
| 75 | D5 | I/O | Data Bus 5 |
| 76 | D6 | I/O | Data Bus 6 |
| 77 | D7 | I/O | Data Bus 7 |
| 78 | VDD | - | +3.3V |
| 79 | GND | - | GND |
| 80 | A0 | I | Address bus 0 |
| 81 | A1 | I | Address bus 1 |
| 82 | A2 | I | Address bus 2 |
| 83 | A3 | I | Address bus 3 |
| 84 | A4 | I | Address bus 4 |
| 85 | A5 | I | Address bus 5 |
| 86 | A6 | I | Address bus 6 |
| 87 | A7 | I | Address bus 7 |
| 88 | A8 | I | Address bus 8 |
| 89 | A9 | I | Address bus 9 |
| 90 | A10 | I | Address bus 10 |
| 91 | A11 | I | Address bus 11 |
| 92 | A12 | I | Address bus 12 |
| 93 | A13 | I | Address bus 13 |
| 94 | A14 | I | Address bus 14 |
| 95 | A15 | I | Address bus 15 |
| 96 | A16 | I | Address bus 16 |
| 97 | A17 | I | Address bus 17 |
| 98 | A18 | I | Address bus 18 |
| 99 | A19 | I | Address bus 19 |
| 100 | A20 | I | Address bus 20 |
| 101 | A21 | I | Address bus 21 |
| 102 | A22 | I | Address bus 22 |
| 103 | A23 | I | Address bus 23 |
| 104 | VDD | - | +3.3V |
| 105 | GND | - | GND |
| 106 | GND | - | GND |
| 107 | CD5# | I | RS-232 ch1 CD signal |
| 108 | CI5# | I | RS-232 ch1 CI signal |

| Pin No. | Name | IN/OUT | Description |
|---|---|---|---|
| 109 | DSR5# | I | RS-232 ch1 DSR signal |
| 110 | CTS5# | I | RS-232 ch1 CTS signal |
| 111 | RXD5 | I | RS-232 ch1 RXD signal |
| 112 | TXD5 | O | RS-232 ch1 TXD signal |
| 113 | DTR5# | O | RS-232 ch1 DTR signal |
| 114 | RTS5# | O | RS-232 ch1 RTS signal |
| 115 | INT4# | I | Shift enable for option display |
| 116 | HTS2 | O | 8 bit serial port output (for option display) |
| 117 | SCK2# | O | Serial port shift clock output (for option display) |
| 118 | STH2 | I | 8 bit serial port input (for option display) |
| 119 | DSR4# | I | MCR track 3 CLS signal |
| 120 | RXD4 | I | MCR track 3 RDD signal |
| 121 | RXC4 | I | MCR track 3 RCP signal |
| 122 | DSR2# | I | MCR track 2 CLS signal |
| 123 | RXD2 | I | MCR track 2 RDD signal |
| 124 | RXC2 | I | MCR track 2 RCP signal |
| 125 | DSR1# | I | MCR track 1 CLS signal |
| 126 | RXD1 | I | MCR track 1 RDD signal |
| 127 | RXC1 | I | MCR track 1 RCP signal |
| 128 | IPLON | O | IPL switch 0 ON signal to CPU |
| 129 | OPTCS# | O | Chip select base signal for expansion option |
| 130 | VDD | - | +3.3V |
| 131 | GND | - | GND |
| 132 | VMEMC# | O | VRAM chip select signal |
| 133 | VIOC# | O | LCDC chip select signal |
| 134 | VWAIT# | I | LCDC wait signal |
| 135 | DSF2# | O | DPRAM chip select signal |
| 136 | EXWAIT# | I | External wait signal |
| 137 | EXINT0# | I | External interrupt signal 0 |
| 138 | EXINT1# | I | External interrupt signal 1 |
| 139 | EXINT2# | I | External interrupt signal 2 |
| 140 | EXINT3# | I | External interrupt signal 3 |
| 141 | BUSY3# | I | Fiscal memory BUZY signal (NU) |
| 142 | RXD3 | I | Fiscal memory RXD signal (NU) |
| 143 | TRXC3 | I | Fiscal memory CLOCK signal (NU) |
| 144 | TXD3 | O | Fiscal memory TXD signal (NU) |
| 145 | TXRDY3 | O | NU |
| 146 | TRXRDY3 | O | NU |
| 147 | RXRDY3 | O | Fiscal memory READY signal (NU) |
| 148 | DTR3# | O | Fiscal memory DTR signal (NU) |
| 149 | RTS3# | O | Fiscal memory RTS signal (NU) |
| 150 | DBTST | I | MPCA test pin (GND) |
| 151 | VRESC | O | NU |
| 152 | ST1# | O | Thermal head drive strobe signal 1 |
| 153 | ST2# | O | Thermal head drive strobe signal 2 |
| 154 | ST3# | O | Thermal head drive strobe signal 3 |
| 155 | GND | - | GND |
| 156 | GND | - | GND |
| 157 | VDD | - | +3.3V |
| 158 | ST4# | O | Thermal head drive strobe signal 4 |
| 159 | ST5# | O | Thermal head drive strobe signal 5 (NU) |
| 160 | GND | - | GND |
| 161 | ST6# | O | Thermal head drive strobe signal 6 (NU) |
| 162 | LATCH# | O | Thermal head latch signal |

| Pin No. | Name | IN/OUT | Description |
|---|---|---|---|
| 163 | SO | O | Thermal head serial output data |
| 164 | GND | - | GND |
| 165 | CLOCK | O | Thermal head clock signal |
| 166 | SI | I | Thermal head serial return data |
| 167 | DTCS | O | Printer control select signal (GND) |
| 168 | LCDWT | I | Wait request signal to CPU (+3.3V) |
| 169 | DTST# | I | MPCA test pin (+3.3V) |
| 170 | INHDEC | I | CSEN# enable signal (GND) |
| 171 | CSEN# | I | TPRC chip select (GND) |
| 172 | TTST2# | I | MPCA test pin (+3.3V) |
| 173 | TTST1# | I | MPCA test pin (+3.3V) |
| 174 | TIRQ# | O | TPRC interrupt request |
| 175 | INH# | I | Thermal head drive inhibit |
| 176 | RPE | I | Receipt paper end signal |
| 177 | JPE | I | Journal paper end signal |
| 178 | PHUP | I | Printer head up signal |
| 179 | PCRES | I | Auto cutter unit reset signal |
| 180 | PFP | I | Auto cutter unit FP signal |
| 181 | VHCOM | I | Head drive common power control |
| 182 | GND | - | GND |
| 183 | VDD | - | +3.3V |
| 184 | RVPON | O | Receipt side paper feed pulse motor common power control signal |
| 185 | JVPON | O | Journal side paper feed pulse motor common power control signal (NU) |
| 186 | CTBO | O | Cutter motor control signal |
| 187 | CTAO | O | Cutter motor control signal |
| 188 | RDS | O | Receipt side paper feed pulse motor drive signal, phase D |
| 189 | RCS | O | Receipt side paper feed pulse motor drive signal, phase C |
| 190 | RBS | O | Receipt side paper feed pulse motor drive signal, phase B |
| 191 | RAS | O | Receipt side paper feed pulse motor drive signal, phase A |
| 192 | JDS | O | Journal side paper feed pulse motor drive signal, phase D |
| 193 | JCS | O | Journal side paper feed pulse motor drive signal, phase C |
| 194 | JBS | O | Journal side paper feed pulse motor drive signal, phase B |
| 195 | JAS | O | Journal side paper feed pulse motor drive signal, phase A |
| 196 | PTRM | I | Receipt motor connector sens signal |
| 197 | PTJM | I | Journal motor connector sense signal |
| 198 | POPI | I | GND |
| 199 | BA15 | O | Address bus 15 for PB-RAM |
| 200 | BA14 | O | Address bus 14 for PB-RAM |
| 201 | GND | - | GND |
| 202 | BA13 | O | Address bus 13 for PB-RAM |
| 203 | BA12 | O | Address bus 12 for PB-RAM |
| 204 | BA11 | O | Address bus 11 for PB-RAM |
| 205 | BA10 | O | Address bus 10 for PB-RAM |
| 206 | BA9 | O | Address bus 9 for PB-RAM |
| 207 | BA8 | O | Address bus 8 for PB-RAM |
| 208 | VDD | - | +3.3V |

## 2-3. CKDC9 (HD404728B02FS)

### 1) General description

The CKDC9 is a 4-bit microcomputer developed for the UP-600/700 and provides functions to control the real-time clock, keys, and displays. The basic functions of the CKDC7 are shown below.

Keys: The CKDC9 is capable of controlling a maximum of 256 momentary keys. (Sharp 2-key rollover control)
Simultaneous scanning of key and switch
(When a key is scanned, the state of a mode and clerk switch is also buffered. The host can scan the state of switch together with the key entry data at the same time the key is scanned.)

Switches: Mode switch with 14 positions maximum
8-bit clerk (cashier) switch
2-bit feed switch
1-bit receipt on/off switch
1-bit option switch
4-bit general-purpose switch (1-bit is used for keyboard select)

Displays: 16-column dot display
12-column 7-segment display (column digit selectable)
All column blink controlled for the dot and 7-segment display decimal point and indicators
Programmable patterns for 7-segment display:
Four patterns
Internal driver for 7-segment display

Buzzer: Single tone control

Clock: Year, month, day of month, day of week, hour, minute

Alarm: Hour, minute

Interrupt request (event control):

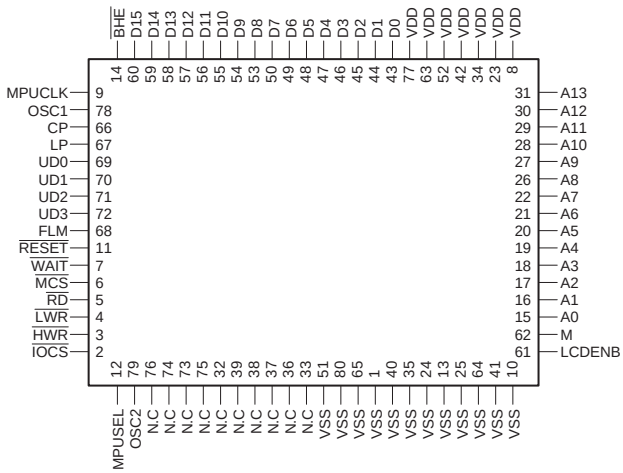
Detection of key input, switch position change, alarm issue, and counter overflow

### 2) Pin description

| Pin No. | Symbol | Signal name | In/ Out | Function |
|---|---|---|---|---|
| 1 | SB | SB | Out | Segment B |
| 2 | SC | SC | Out | Segment C |
| 3 | SD | SD | Out | Segment D |
| 4 | SE | SE | Out | Segment E |
| 5 | SF | SF | Out | Segment F |
| 6 | SG | SG | Out | Segment G |
| 7 | P4 | AP | Out | |
| 8 | P0 | NC | — | NC |
| 9 | P1 | NC | — | NC |
| 10 | P2 | DP | Out | Decimal point |
| 11 | P3 | ID | Out | Indicator |
| 12 | $\overline{\text{MODR}}$ | VCC | — | +5V |
| 13 | $\overline{\text{CFSR}}$ | $\overline{\text{CFSR}}$ | In | Clerk key, Feed key, Switch return signal |
| 14 | KEX0 | NC | Out | NC |
| 15 | KEX1 | NC | Out | NC |
| 16 | RQ | GND | — | GND |
| 17 | SKR0 | VCC | — | +5V |
| 18 | ST0 | ST0 | Out | Key strobe signal |
| 19 | ST1 | ST1 | Out | Key strobe signal |
| 20 | ST2 | ST2 | Out | Key strobe signal |
| 21 | ST3 | ST3 | Out | Key strobe signal |
| 22 | $\overline{\text{POFF}}$ | $\overline{\text{POFF}}$ | In | Power off signal |
| 23 | $\overline{\text{STOP}}$ | $\overline{\text{STOP}}$ | In | STOP signal |
| 24 | $\overline{\text{DDIG}}$ | VCC | — | +5V |
| 25 | $\overline{\text{DCS}}$ | $\overline{\text{DCS}}$ | — | Dot display controller chip select $\overline{\text{DCS}}$ |
| 26 | VCC | $\overline{\text{VCKDC}}$ | — | +5V |
| 27 | $\overline{\text{SCK}}$ | $\overline{\text{SCK}}$ | In | Clock signal |
| 28 | HTS | HTS | In | Key data from host |
| 29 | STH | STH | Out | Key data to host |
| 30 | SDISP | GND | — | GND |
| 31 | BUZZ | BUZZ | Out | Buzzer |
| 32 | $\overline{\text{DSCK}}$ | $\overline{\text{DSCK}}$ | — | Dot display controller $\overline{\text{SCK}}$ |
| 33 | $\overline{\text{SRES}}$ | $\overline{\text{RESET}}$ | Out | Reset signal |
| 34 | DS0 | $\overline{\text{DSO}}$ | — | Dot display controller SO |
| 35 | $\overline{\text{SHEN}}$ | $\overline{\text{SHEN}}$ | Out | Shift enable signal |
| 36 | $\overline{\text{IRQ}}$ | $\overline{\text{KRQ}}$ | Out | Key request signal |
| 37 | KR0 | $\overline{\text{KR0}}$ | In | Key return signal |
| 38 | KR1 | $\overline{\text{KR1}}$ | In | Key return signal |
| 39 | KR2 | $\overline{\text{KR2}}$ | In | Key return signal |
| 40 | KR3 | $\overline{\text{KR3}}$ | In | Key return signal |
| 41 | RESET | CKDCR | In | CKDC reset signal |
| 42 | OSC2 | OSC2 | — | Clock |
| 43 | OSC1 | OSC1 | — | Clock |
| 44 | GND | GND | — | GND |
| 45 | CL1 | CL1 | — | Time clock |
| 46 | CL2 | CL2 | — | Time clock |
| 47 | TEST | VCKDC | — | +5V |
| 48 | G0 | G1 | Out | Display digit signal |
| 49 | G1 | G2 | Out | Display digit signal |
| 50 | G2 | G3 | Out | Display digit signal |
| 51 | G3 | G4 | Out | Display digit signal |
| 52 | G4 | G5 | Out | Display digit signal |
| 53 | G5 | G6 | Out | Display digit signal |
| 54 | G6 | G7 | Out | Display digit signal |
| 55 | G7 | G8 | Out | Display digit signal |
| 56 | G8 | G9 | Out | Display digit signal |
| 57 | G9 | G10 | Out | Display digit signal |
| 58 | G10 | G11 | Out | Display digit signal |
| 59 | G11 | NC | Out | NC |
| 60 | PO0 | NC | | NC |
| 61 | PO1 | NC | | NC |
| 62 | PO2 | NC | — | NC |
| 63 | PO3 | NC | — | NC |
| 64 | SA | SA | — | Segment A |

## 2-4. LCD controller (M66271FB)

### 1) Pin configration



**2) Pin configration**

| Pin No. | Name | Description |
|---|---|---|
| 1 | VSS | GND |
| 2 | IOCS# | Chip select input for control register |
| 3 | HWR# | High write strobe input |
| 4 | LWR# | Low write strobe input |
| 5 | RD# | Read strobe input |
| 6 | MCS# | Chip select input for VRAM |
| 7 | WAIT# | WAIT output to MPU |
| 8 | VDD | +5V |
| 9 | MPUCLK | MPU clock |
| 10 | VSS | GND |
| 11 | RESET# | Reset input |
| 12 | MPUSEL | 8/16-bit selective input to MPU |
| 13 | VSS | GND |
| 14 | BHE# | Bus high enable input |
| 15 | A0 | MPU address bus 0 |
| 16 | A1 | MPU address bus 1 |
| 17 | A2 | MPU address bus 2 |
| 18 | A3 | MPU address bus 3 |
| 19 | A4 | MPU address bus 4 |
| 20 | A5 | MPU address bus 5 |
| 21 | A6 | MPU address bus 6 |
| 22 | A7 | MPU address bus 7 |
| 23 | VDD | +5V |
| 24 | VSS | GND |
| 25 | VSS | GND |
| 26 | A8 | MPU address bus 8 |
| 27 | A9 | MPU address bus 9 |
| 28 | A10 | MPU address bus 10 |
| 29 | A11 | MPU address bus 11 |
| 30 | A12 | MPU address bus 12 |
| 31 | A13 | MPU address bus 13 |
| 32 | N.C | |
| 33 | N.C | |
| 34 | VDD | +5V |
| 35 | VSS | GND |
| 36 | N.C | |
| 37 | N.C | |
| 38 | N.C | |
| 39 | N.C | |
| 40 | VSS | GND |
| 41 | VSS | GND |
| 42 | VDD | +5V |
| 43 | D0 | MPU data bus 0 |
| 44 | D1 | MPU data bus 1 |
| 45 | D2 | MPU data bus 2 |
| 46 | D3 | MPU data bus 3 |
| 47 | D4 | MPU data bus 4 |
| 48 | D5 | MPU data bus 5 |
| 49 | D6 | MPU data bus 6 |
| 50 | D7 | MPU data bus 7 |
| 51 | VSS | GND |
| 52 | VDD | +5V |
| 53 | D8 | MPU data bus 8 |
| 54 | D9 | MPU data bus 9 |
| 55 | D10 | MPU data bus 10 |
| 56 | D11 | MPU data bus 11 |
| 57 | D12 | MPU data bus 12 |
| 58 | D13 | MPU data bus 13 |
| 59 | D14 | MPU data bus 14 |
| 60 | D15 | MPU data bus 15 |
| 61 | LCDENB | LCD (ON/OFF) control signal input |
| 62 | M | LCD AC-conversion signal output |
| 63 | VDD | +5V |
| 64 | VSS | GND |
| 65 | VSS | GND |
| 66 | CP | Display data transfer clock |
| 67 | LP | Display data clutch pulse |
| 68 | FLM | FIRST LINE MARKER signal output |
| 69 | UD0 | LCD display data bus 0 |
| 70 | UD1 | LCD display data bus 1 |
| 71 | UD2 | LCD display data bus 2 |
| 72 | UD3 | LCD display data bus 3 |
| 73 | N.C | |
| 74 | N.C | |
| 75 | N.C | |
| 76 | N.C | |
| 77 | VDD | +5V |
| 78 | OSC1 | Oscillation input terminal |
| 79 | OSC2 | Oscillation output terminal |
| 80 | VSS | GND |

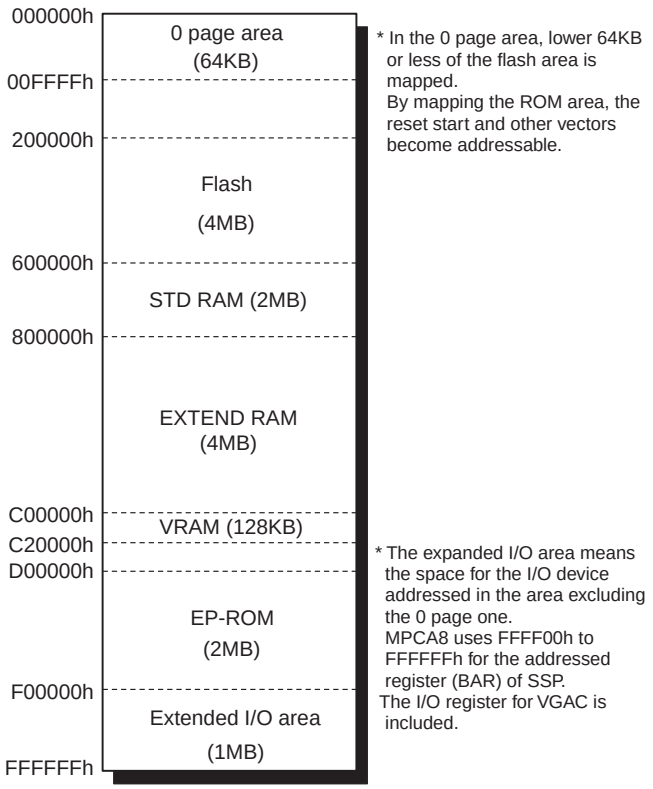
# 3. Address map

## 3-1. Total memory space

The address map of the total memory space is shown below. As you can see, the memory space is divided into the following 5 blocks:

0page area (including the I/O area)

- VRAM
- RAM
- ROM
- Extended I/O area



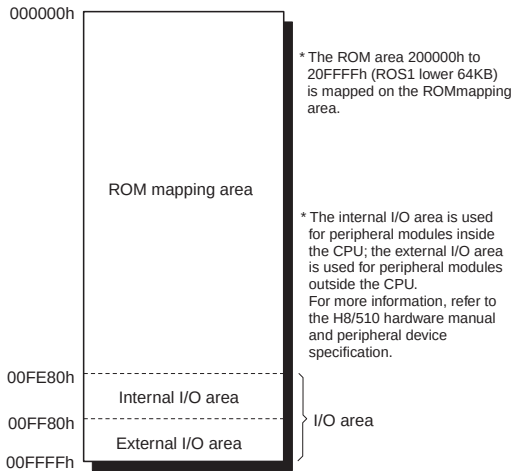

## 3-2. 0page area

The 0page area consists of four spaces: the ROM mapped area, internal and external I/O areas.

The ROM mapped space have been devised for the following purposes:

① Simplifying the procedure for booting the IPL program

② Achieving high-speed accessing, and accessing by abbreviated instructions.

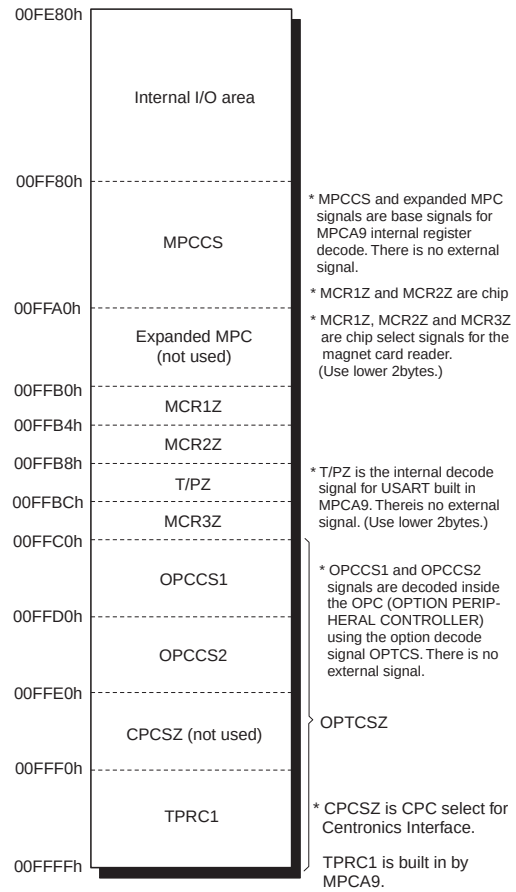

000000h
ROM mapping area
00FE80h
Internal I/O area
00FF80h
External I/O area
00FFFFh
I/O area
* The ROM area 200000h to 20FFFFh (ROS1 lower 64KB) is mapped on the ROMmapping area.
* The internal I/O area is used for peripheral modules inside the CPU; the external I/O area is used for peripheral modules outside the CPU.
For more information, refer to the H8/510 hardware manual and peripheral device specification.

## 3-3. I/O areas

The addresses from 00FF80h to 00FFFFh are called the internal I/O area.

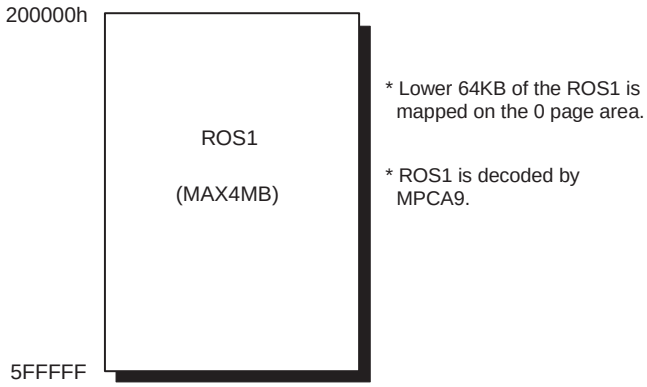
The internal I/O area is a space where the control registers and built-in ports inside the CPU are addressed.

The external I/O area is a space where the peripheral devices outside the CPU or devices on an optional card are addressed.



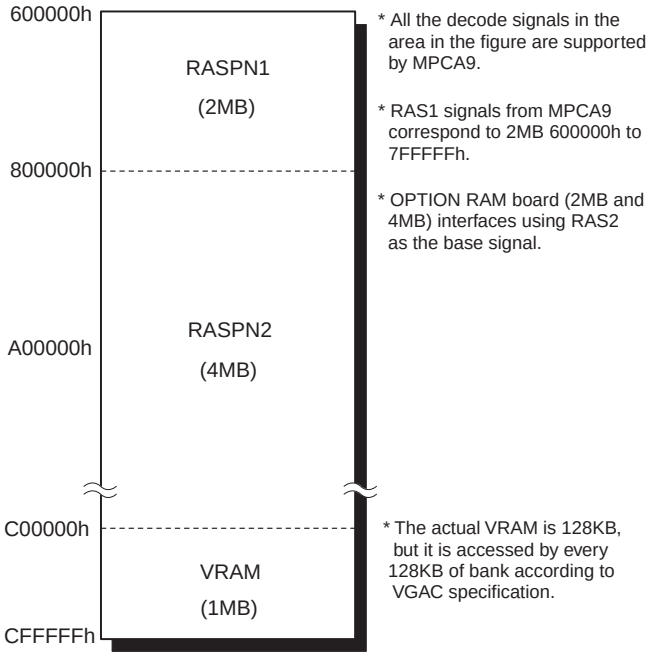
### 3-4. ROM space

Fig.5 shows the ROM space. The UP-600/700 uses 2MB of NOR-type flash memory instead of conventional ROM, so that the FROS1# from the MPCA9 is input into the chip enable of the flash memory.




### 3-5. VRAM & RAM space

The VRAM is the display memory of the LCD.


600000h
RASPN1
(2MB)
800000h
A00000h
RASPN2
(4MB)
C00000h
VRAM
(1MB)
CFFFFFh
* All the decode signals in the area in the figure are supported by MPCA9.
* RAS1 signals from MPCA9 correspond to 2MB 600000h to 7FFFFFh.
* OPTION RAM board (2MB and 4MB) interfaces using RAS2 as the base signal.
* The actual VRAM is 128KB, but it is accessed by every 128KB of bank according to VGAC specification.

### 3-6. Extended I/O area

The addresses from F00000h to FFFFFFh are called an extended I/O area. The UP-600/700 uses the following addresses as the break address register (BAR) for SSP.

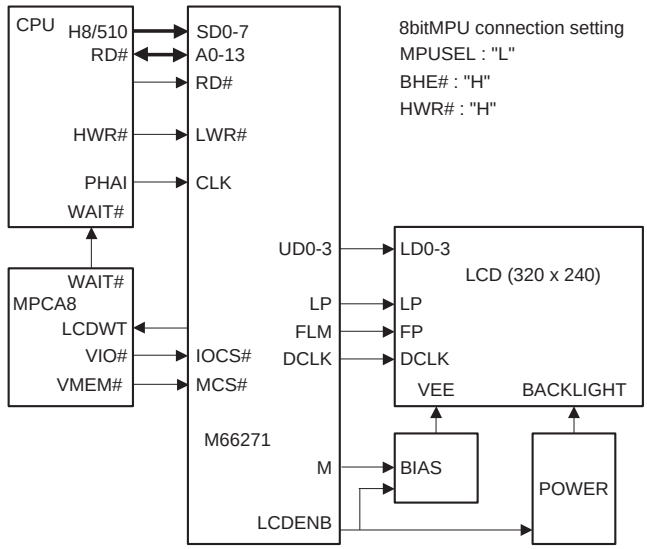
- FFFF00h ~ FFFFFFh

## 4. LCD display

The UP-600/700 uses a 320 x 240 dot monochromatic LCD for the main display and VGAC (M66271) for the display controller which is connected to H8/510 in the ISA bus connection mode.

### 4-1. Block diagram

Here is the block diagram of the LCD and its allied components.




### 4-2. LCD panel

The LCD panel uses a dot-matrix liquid crystal module with monochromatic STN and CCFT backlight. The resolution is 320 x 240.

### 4-3. Display controller

Matsushita VGAC (M66271) is used for display controller.

VRAM is present on the address space of the CPU and it is possible to write and read data from the CPU side through the lower 9600 byte address of 128 KB size in addresses C00000H ~ C1FFFFH.
C00000H - C1FFFH:

### 4-4. LCD ON control

The LCD is turned on and off by controlling the bias power supply for the LCD using the terminal LCDENB of the M66271.
LCDENB is in low level when resetting. When bit 0 of the mode resistor of the M66271 by software is set to high level, the power is supplied to the LCD, thus turning on the LCD.

### 4-5. Back light control

The backlight ON/OFF is controlled by the same LCDENB as used for controlling the LCD ON.

### 4-6. Luminance and contrast adjustment

- Luminance: Luminance is adjusted with an inverter which has dimming function. (Fixed)
- Contrast: Contrast is adjusted by controlling the contrast adjustment voltage (VO) of the LCD.

## 5. Customer display

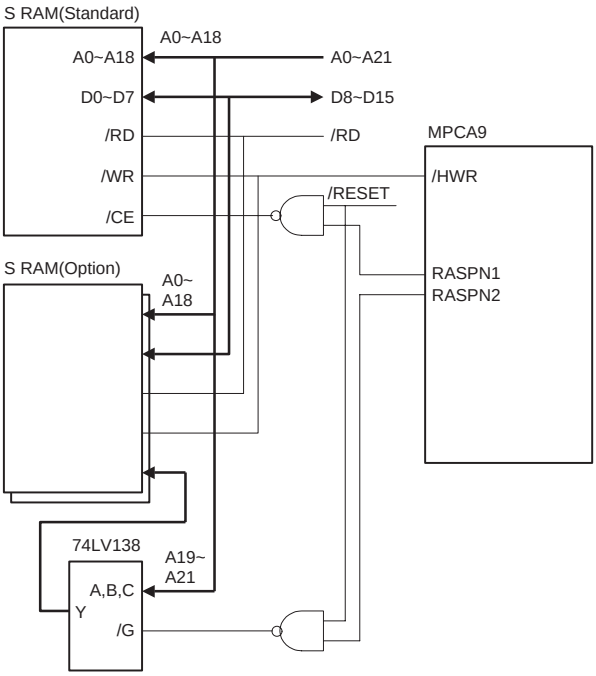
The UP-600/700 can incorporate a UP-P16DP for the customer display.

## 6. SRAM (Standard)

The device is HYUNDAI 4MB SRAM (HY628400ALLT2-70 512K 8bit) with access time of 70ns.

### 6-1. CPU interface

The figure below shows a typical pseudo SRAM interface in the UP-600/700.




### 6-2. SRAM address

Standard SRAM is decoded as follows by the RASPN1 signal.

① 780000h ~ 7FFFFFh

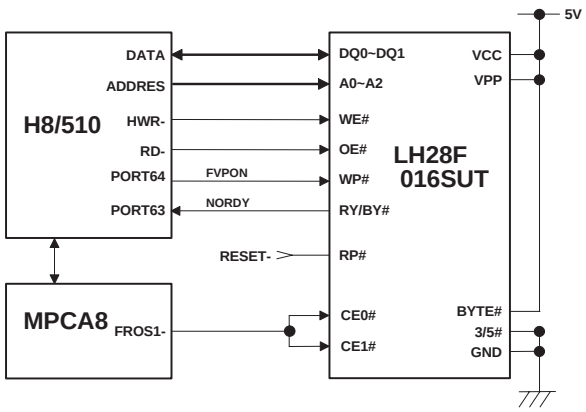
The base signal is 2MB. It thus wraparounds with 600000H ~ 7FFFFFH 1.5MB.

## 7. NOR-type flash memory

Here is the explanation for the interface of NOR-type flash memory. The device is Sharp's LH28F016SU flash memory which consists of 512 K words × 16 or 1 MB × 8, with 32 blocks of 64 KB.

### 7-1. CPU interface

The figure below shows a typical interface for the LH28F016SU of the UP-600/700 system.




### 7-2. Device control

After resetting, the device automatically enters the array read mode and perform the same action as the usual ROM, thus requiring no special consideration when reading data.

Data can be written at high speed by using the page buffer.

## 8. SSP control

The UP-600/700 uses flash memory in the place of EPROM, so it is possible to rewrite the contents of the flash memory in changing the program. However, since the existing gate array MPCA8 is used, it is also possible to use the conventional SSP.

### 8-1. Operation

Like the MPCA5 ~ 8, the MPCA9 adopts the break address register comparison method for detecting addresses. The operation of this method is briefly explained below.

The gate array always compares the break address register (BAR) built in the gate array, with the address bus to monitor the address bus.

If both agree, the gate array outputs the NMI signal to the CPU, which in turn shifts from normal handling to exception handling.

In both the MPCA5 ~ 8 and the MPCA9, SSP is achieved by the above operation.

The setting of the break address register (BAR) is directly written in the addresses from FFFF00h to FFFFFFh.

## 9. Interrupt control

There are roughly two types of interrupts:

- Internal interrupts: Controlled inside the CPU
- External interrupts: Input into the CPU from outside

### 9-1. Internal interrupts

Device interrupts built in the CPU are used for the following applications:

| Event factor | | Application |
|---|---|---|
| SC11 | | Interrupt source as RS232 : CH8 |
| SC12 | | Not used (SC1 is used for CKDC interface.) |
| FRT1 | (ICI)<br>(OCRA)<br>(OCRB)<br>(OVF) | INTMCR ~ MCR interrupt (to FT11 terminal) |
| FRT2 | (ICI) | Standard SHEN event (for CKDC) |
| | (OCRA) | Simple IRC timer event |
| | (OCRB) | RS232 timer event |
| | (OVF) | System timer (53 ms) |
| TMR | (CMA)<br>(CMB)<br>(OVF) | |
| WDT | (OVF) | Drawer open timer |
| A/D | | Not used |
| NMI | | SSP request |

### 9-2. External interrupts

The following types of external interrupts are available:

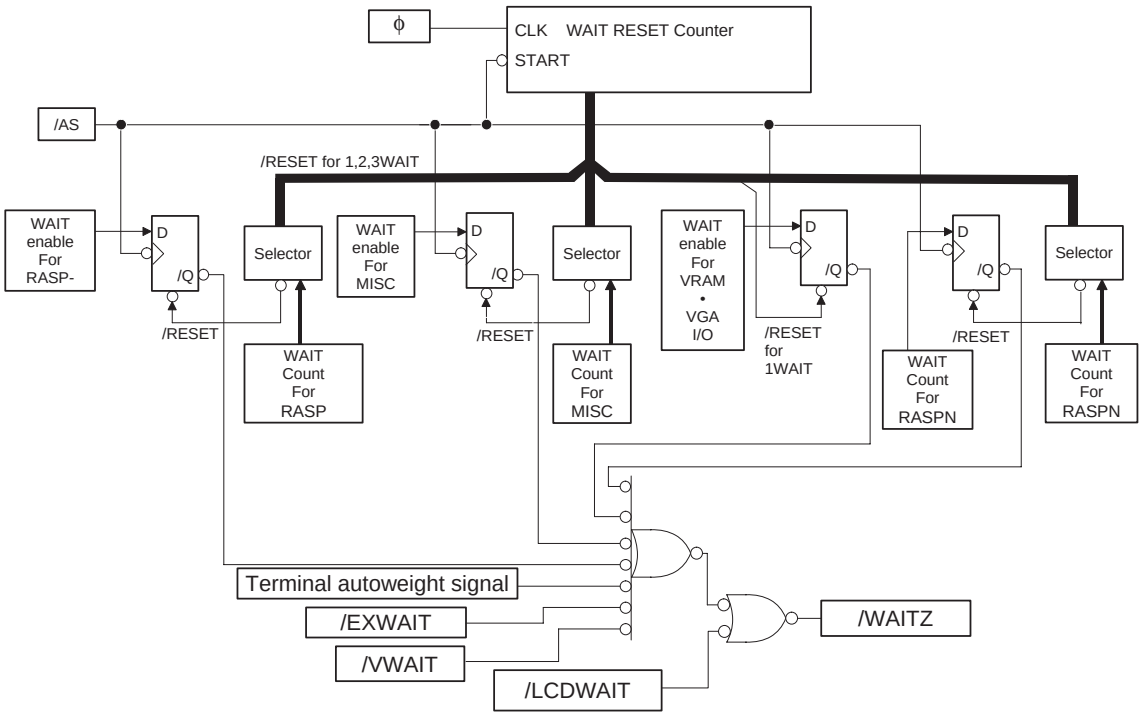
- $\overline{\text{NMI}}$ (SSP)
- $\overline{\text{IRQ0}}$ (Standard I/O interrupt)
- $\overline{\text{IRQ1}}$ (RS232 interrupt)
- $\overline{\text{IRQ2}}$ (Not Used)
- $\overline{\text{IRQ3}}$ (Used as SCK terminal)

# 10. WAIT control

The weight control function built in the MPCA9 is used to provide an interface with low-speed devices.

## 10-1. Block diagram

The block diagram of the wait control function is shown.




In the figure, the decoder, wait enabling register, AND-OR sections are the same as those in the MPCA6 or 7, but other components are newly incorporated in the MPCA5.

EXWAITZ and WAITZ are external weight signals which are to be ORed inside the MPCA9 and output to the WAITZ. The EXWAITZ is a general-purpose wait request terminal, and WAITZ is the wait request signal from the VGA controller.

# 11. CKDC9

The UP-600/700 on CKDC9 for the CKDC PWB and one CKDC9 for POLE display (option) to carry out the following control operations.

CKDC PWB CKDC9:

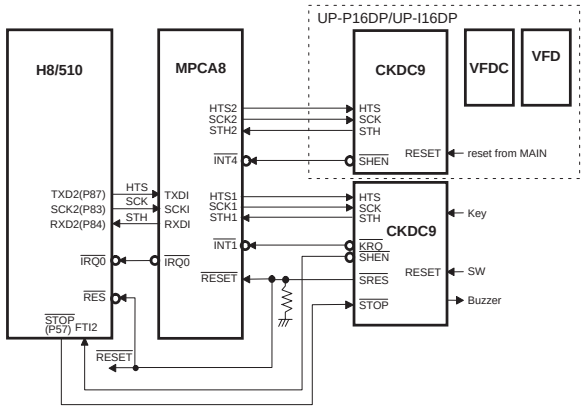
- Clock (second data readable)
- Buzzer
- System reset
- Key/Clerk switch

POLE CKDC9(UP-P16DP)

- Customer display tube

## 11-1. Interface

CKDC9 is connected through the MPCA8.



# 12. Option RAM interface

## 12-1. Interface

The expanded RAM connector terminals are shown in the table.

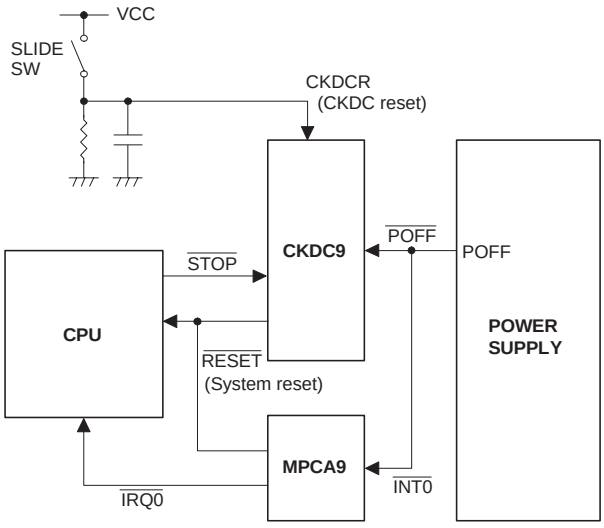
The 40-pin RAM is used for the connector.

Extension RAM connector terminals

| Signal Name | Pin No. | | Pin No. | Signal Name |
|---|---|---|---|---|
| +5V | 1 | | 2 | N.C. |
| $\overline{\text{HWR}}$ | 3 | | 4 | N.C. |
| GND | 5 | | 6 | A21 |
| A20 | 7 | | 8 | A19 |
| A18 | 9 | | 10 | A17 |
| A16 | 11 | | 12 | A15 |
| A14 | 13 | | 14 | A13 |
| A12 | 15 | | 16 | A11 |
| A10 | 17 | | 18 | A9 |
| A8 | 19 | | 20 | A7 |
| A6 | 21 | | 22 | A5 |
| A4 | 23 | | 24 | A3 |
| A2 | 25 | | 26 | A1 |
| A0 | 27 | | 28 | $\overline{\text{RD}}$ |
| D7 | 29 | | 30 | D6 |
| D5 | 31 | | 32 | D4 |
| D3 | 33 | | 34 | D2 |
| D1 | 35 | | 36 | D0 |
| $\overline{\text{RASPN2}}$ | 37 | | 38 | VCKDC |
| GND | 39 | | 40 | GND |

# 13. Reset sequence

The reset sequence block diagram is shown below. Note that $\overline{\text{RESET}}$ signal (system reset) and $\overline{\text{CKDCR}}$ signal (CKDC reset) are different from each other.




## 13-1. Power ON/OFF

The flow of signal processing at the time of the power supply turning On/Off is as follows:

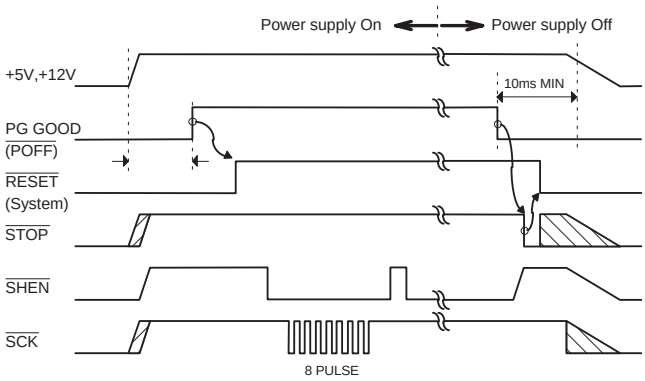
<Power OFF> **Table 19**

| | Power supply | MPCA9 | CPU | CKDC9 |
|---|---|---|---|---|
| 1 | $\overline{\text{POFF}}$ → L | | | |
| 2 | | $\overline{\text{IRQ0}}$ → L | | |
| 3 | | | $\overline{\text{STOP}}$ → L | |
| 4 | | | | $\overline{\text{RESET}}$ → L (System reset) |

<Power ON> **Table 20**

| | Power supply | MPCA9 | CPU | CKDC9 |
|---|---|---|---|---|
| 1 | $\overline{\text{POFF}}$ → H | | | |
| 2 | | | $\overline{\text{STOP}}$ → H | |
| 3 | | | | $\overline{\text{RESET}}$ → H (System reset) |

The table below shows the timing chart.

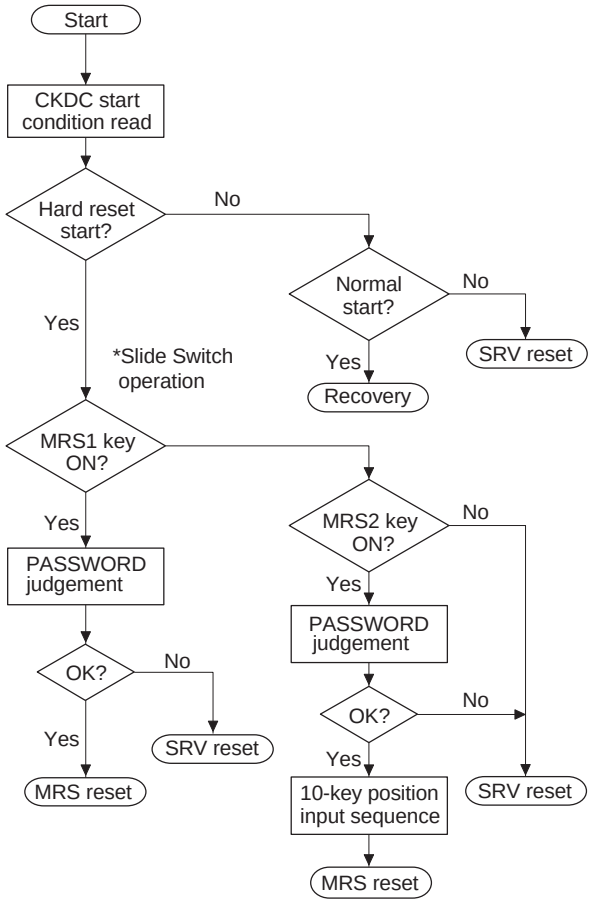


### 13-2. MRS, SRV reset

The UP-600/700 does not have the mode switch. The procedure for resetting MRS, SRV is different from that of conventional cash registers.
in the UP-600/700, MRS, SRV resetting is selected and executed by the key which has bee depressed when the CKDC reset is released to start the system.

(In the case of MRS, security is added by a key operation equivalent to a pass word.)

**Flow chart**




## 14. Drawer

The UP-600/700 can use up to 2 optional external drawers.

### 14-1. Drawer solenoid drive

P34 ~ P37 inside the CPU are allocated for the port output of the drawer solenoid drive.

| Built-in port | Signal name | Remarks |
|---|---|---|
| P34 | $\overline{DR0}$ | Drawer 1 (optional drawer) |
| P35 | $\overline{DR1}$ | Drawer 2 (optional drawer) |
| P36 | $\overline{DR2}$ | Reserved |
| P37 | $\overline{DR3}$ | Reserved |

One port corresponds to one drawer. Theoretically, it is possible to drive multiple drawers at the same time, but this processing must be inhibited softwarewisely because of power supply capacity and driver hardware factors. If a power failure is detected, the drawer solenoid drive must be stopped as soon as possible.

∗ The drawer solenoid drive time must controlled in the range of 40 ms to 50 ms by the timer.

### 14-2. Drawer open/close sense

The drawer open/close sense signal is input into the built-in port of the CPU. the sense signal of an optional drawer sensor is also wired ORed before inputting.

- P33=1: Any of the drawers is open.

## 15. TCP/IP STACK

The LAN of the UP-600/700 uses as a protocol Ethernet, which supports TCP/IP.

The interface with the TCP/IP board is achieved through 2 interrupt signals and dual-port RAM.

The decode of dual-port RAM is located in the following space:

DP-RAM: F20000H - F2FFFFH (max. 64 KB)

The interruption from the TCP/IP is allocated as follows:

EXINTO: INTSW (SLAVE WRITE interrupt) bit 6 of 00FF81H

EXINT1: INTSR (SLAVE READ interrupt) bit 0 of 00FF80H

<TCP/IP connector terminals>

| Signal Name | Pin No. | | Pin No. | Signal Name |
|---|---|---|---|---|
| +5V | 2 | | 1 | +5V |
| +5V | 4 | | 3 | +5V |
| A14 | 6 | | 5 | A15 |
| A12 | 8 | | 7 | A13 |
| $\overline{HWR}$ | 10 | | 9 | $\overline{DPCS}$ |
| A10 | 12 | | 11 | A11 |
| A0 | 14 | | 13 | $\overline{RD}$ |
| A2 | 16 | | 15 | A1 |
| A4 | 18 | | 17 | A3 |
| A6 | 20 | | 19 | A5 |
| A8 | 22 | | 21 | A7 |
| D7 | 24 | | 23 | A9 |
| D5 | 26 | | 25 | D6 |
| D3 | 28 | | 27 | D4 |
| D1 | 30 | | 29 | D2 |
| $\overline{LRES}$ | 32 | | 31 | D0 |
| $\overline{INTSW}$ | 34 | | 33 | $\overline{INTSR}$ |
| - | 36 | | 35 | - |
| GND | 38 | | 37 | GND |
| GND | 40 | | 39 | GND |

## 16. RS232

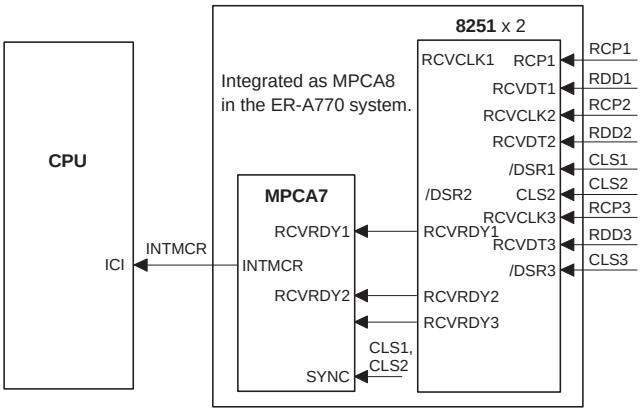
Two standard RS232 channels are compatible with the ER-A5RS. However, while the ER-A5RS uses the $\overline{IRQ2}$ terminal of the CPU for interruption of the RS232, the UP-600/700 cannot use the $\overline{IRQ1}$ terminal instead of it. (The $\overline{IRQ2}$ terminal is used for IR as the SCK1 terminal.)
The standard RS232 is fixed to the logic channels 1 and 8. Use the channels 2, 3, 4, 5, 6 and 7 for the ER-A5RS.

## 17. MCR

This paragraph describes MCR option (UP-E13MR) control defined by UP-600/700 hardware architecture.
3 channels of the serial port (interchangeable with 8251) built in the MPCA9 are used. 3 tracks of data are read simultaneously. Supports the first and second tracks MCR of ISO. (UP-E13MR)

## 17-1. CPU interface

The CPU interface for the USART (8251) and magnet card reader (MCM-21) in the UP-600/700 system is shown below.




Signal description

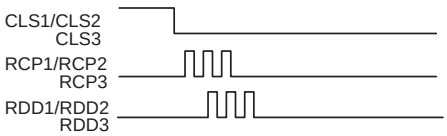
| | |
|---|---|
| RCP1 | TRACK 1 CLOCK PULSE |
| RDD1 | TRACK 1 DATA SIGNAL |
| RCP2 | TRACK 2 CLOCK PULSE |
| RDD2 | TRACK 2 DATA SIGNAL |
| RCP3 | TRACK 3 CLOCK PULSE |
| RCD3 | TRACK 3 DATA SIGNAL |
| CLS1 | TRACK 1 CARD DETECTION SIGNAL |
| CLS2 | TRACK 2 CARD DETECTION SIGNAL |
| CLS3 | TRACK 3 CARD DETECTION SIGNAL |
| RCVRDY1 | TRACK 1 DATA RECEIVING SIGNAL |
| RCVRDY2 | TRACK 2 DATA RECEIVING SIGNAL |
| RCVRDY3 | TRACK 3 DATA RECEIVING SIGNAL |
| INTMCR | INTERRUPT SIGNAL OR-SYNTHESIZED from RCVRDY and SYNC input |

2 chip select signals for 8251 are generated inside MPCA8.

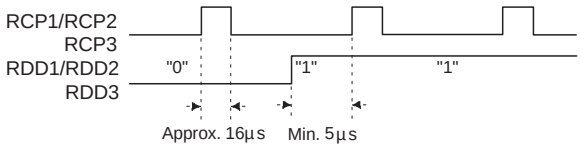
## 17-2. MCR interface

The operating timing of the MCR interface signals is given below.

(1) Example of timing




(2) Detailed timing (relation between DATA and CLOCK PULSE)

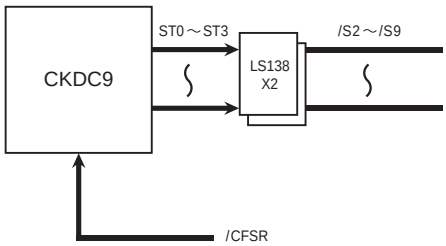


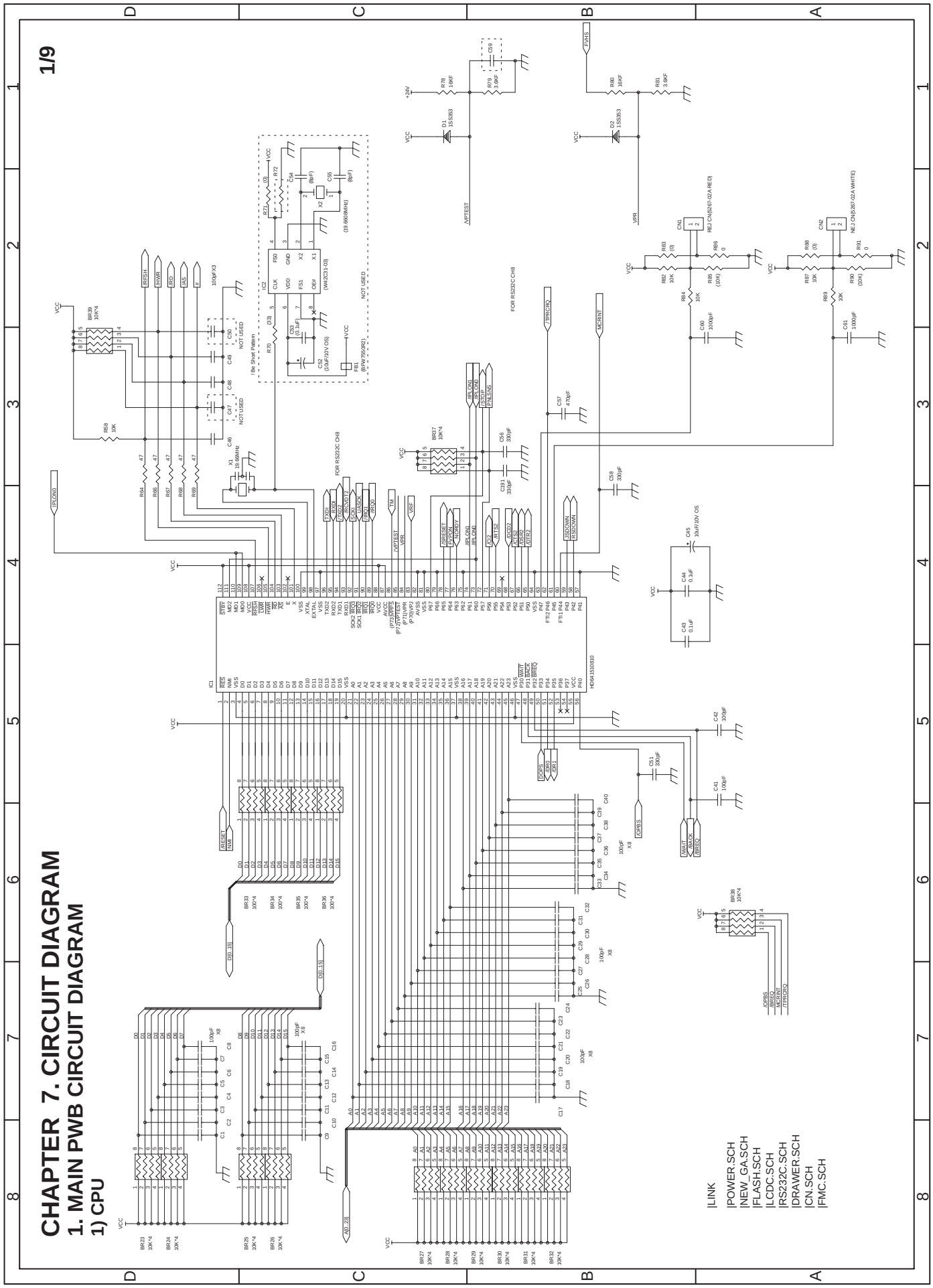

The "NULL" CODE is basically written prior to the opening code. The opening code detection algorithm is considered because data may become corrupt before and after the CARD detection signal due to a worn magnet stripe.

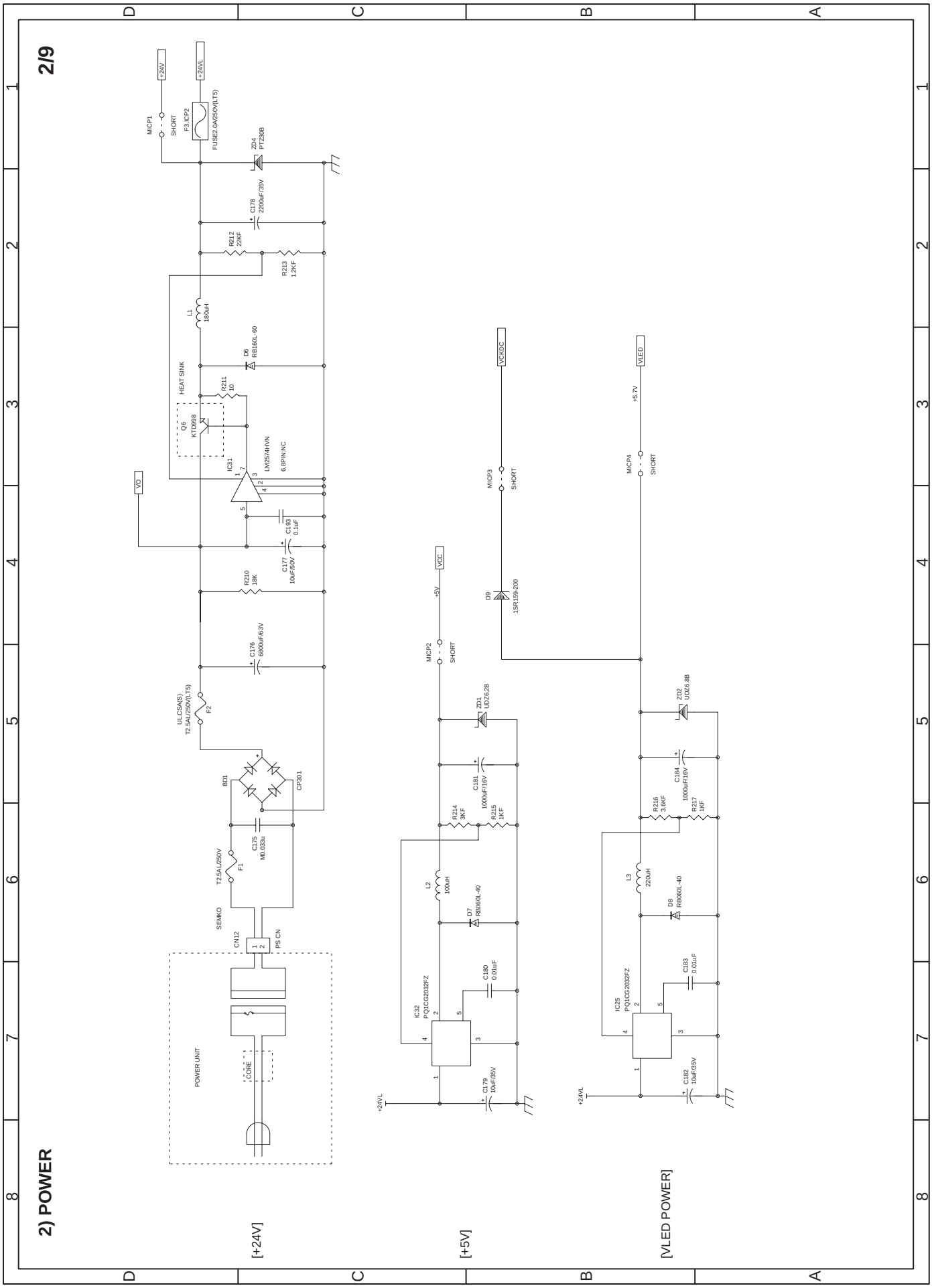
# 18. 1-HOLE CLERK

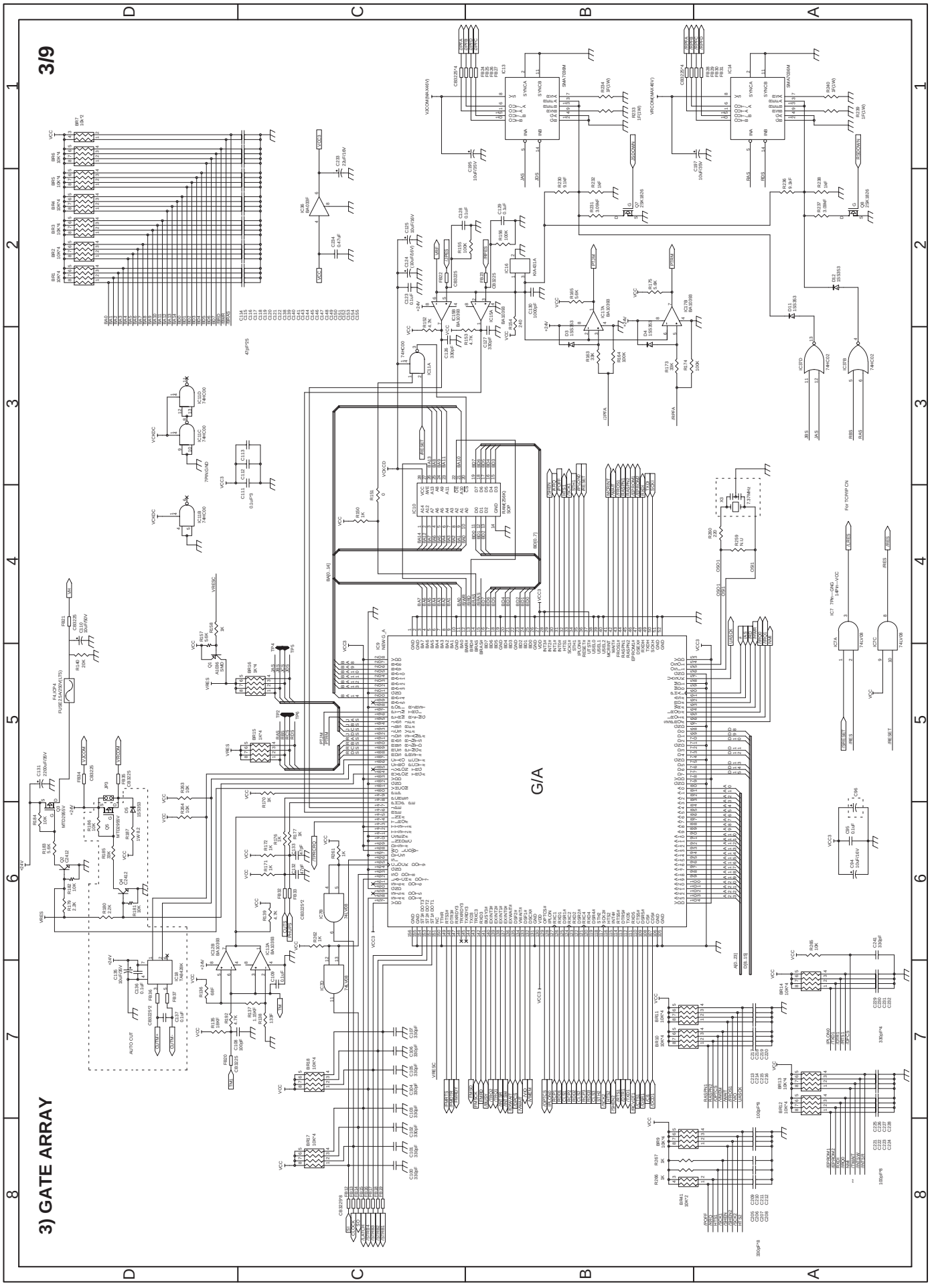
On the UP-600/700, 1-hole clerk key with up to 8 bits can be used.

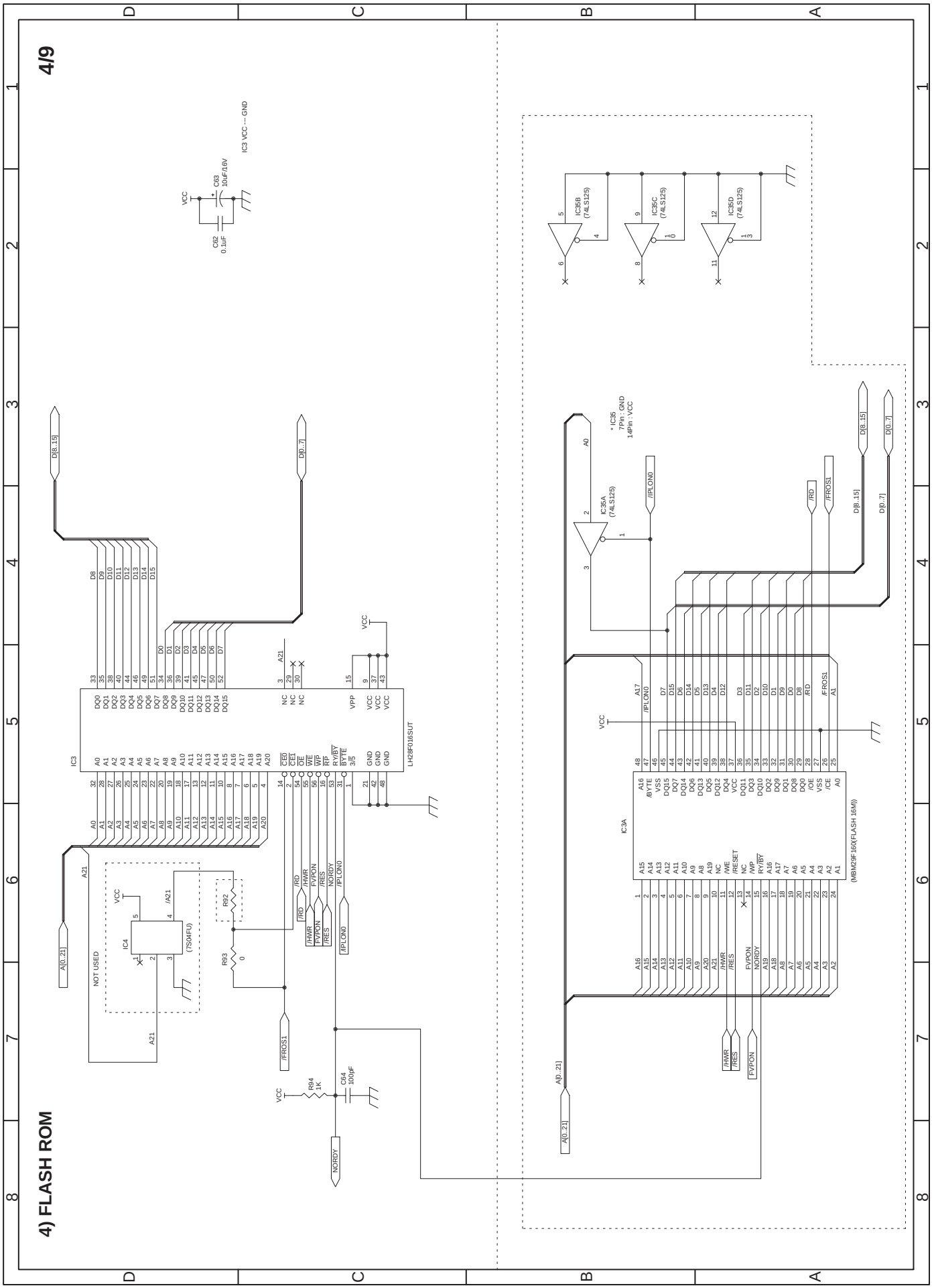
The 1-hole clerk switch is controlled through the CKDC9 on the main board.

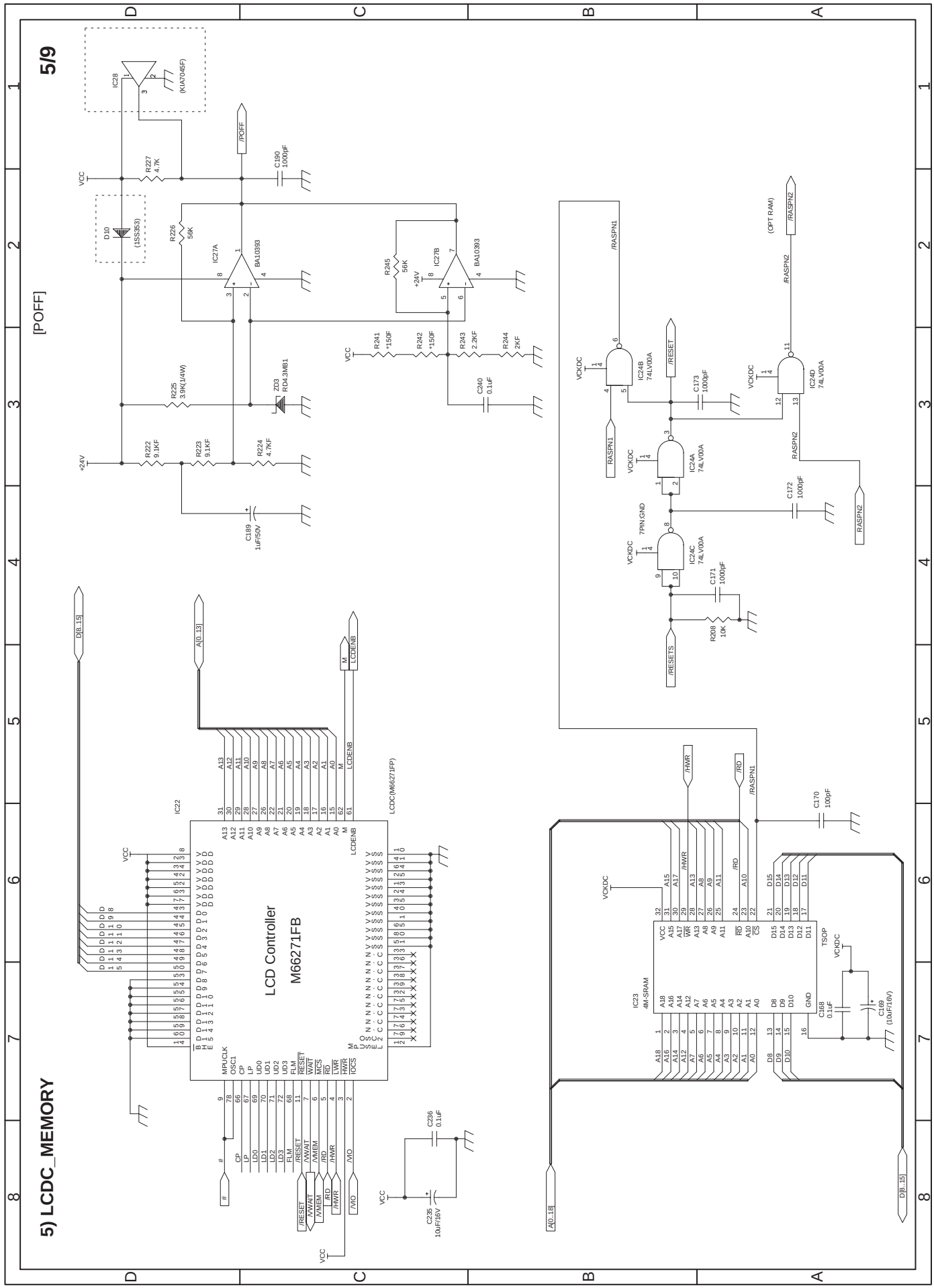


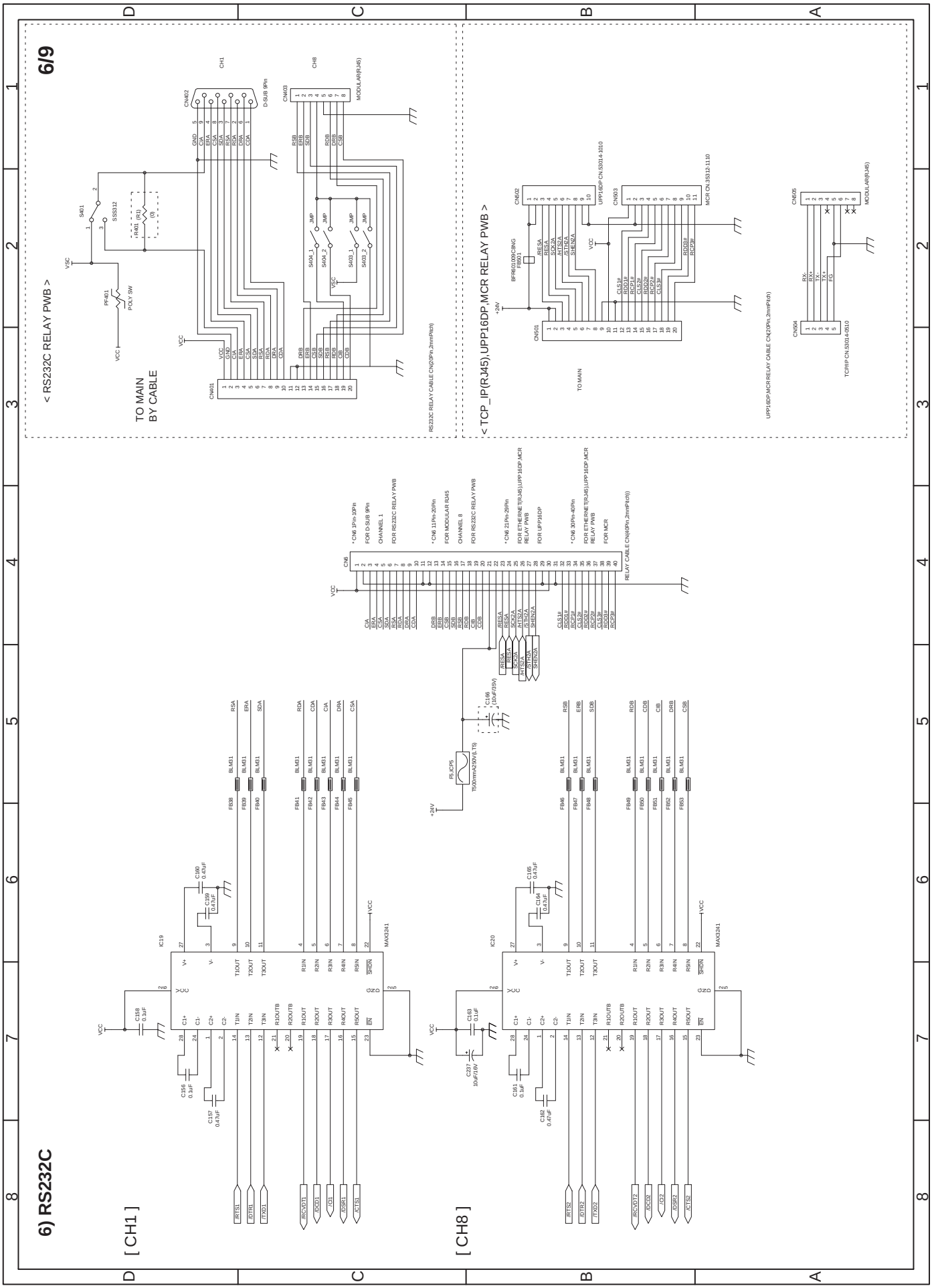

CHAPTER 7. CIRCUIT DIAGRAM
1. MAIN PWB CIRCUIT DIAGRAM
1) CPU
1/9
|LINK
|POWER.SCH
|NEW_GA.SCH
|FLASH.SCH
|LCDC.SCH
|RS232C.SCH
|DRAWER.SCH
|CN.SCH
|FMC.SCH

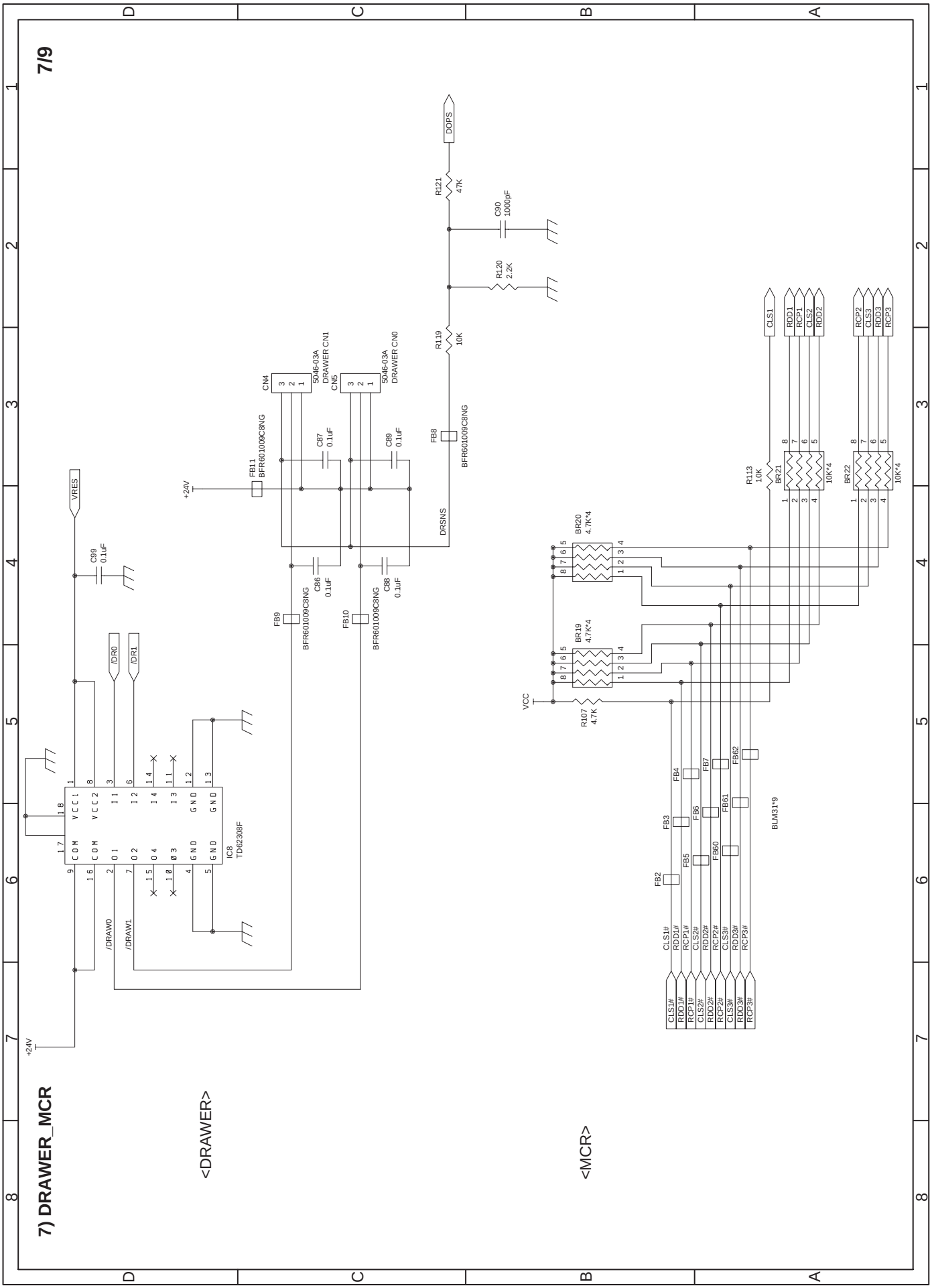

2/9
2) POWER
[+24V]
[+5V]
[VLED POWER]
MICP1
SHORT
F3,ICP2
FUSE2.0A/250V(LTS)
+24V
+24VL
ZD4
PTZ30B
C178
2200uF/35V
R212
22KF
R213
1.2KF
L1
180uH
D6
RB160L-60
HEAT SINK
R211
10
Q6
KTD998
IC31
LM2574HVN
6,8PIN:NC
VO
C193
0.1uF
C177
10uF/50V
R210
18K
C176
6800uF/63V
ULCSA(S)
T2.5AL/250V(LTS)
F2
BD1
CP301
C175
M0.033u
T2.5AL/250V
F1
SEMKO
CN12
PS CN
POWER UNIT
CORE
MICP2
+5V
VCC
SHORT
ZD1
UDZ5.2B
C181
1000uF/16V
R214
3KF
R215
1KF
L2
100uH
D7
RB060L-40
C180
0.01uF
IC32
PQ1CG2032FZ
C179
10uF/35V
+24VL
MICP3
SHORT
VCHDC
D9
1SR159-200
MICP4
SHORT
+5.7V
VLED
ZD2
UDZ6.8B
C184
1000uF/16V
R216
3.6KF
R217
1KF
L3
220uH
D8
RB060L-40
C183
0.01uF
IC25
PQ1CG2032FZ
C182
10uF/35V
+24VL

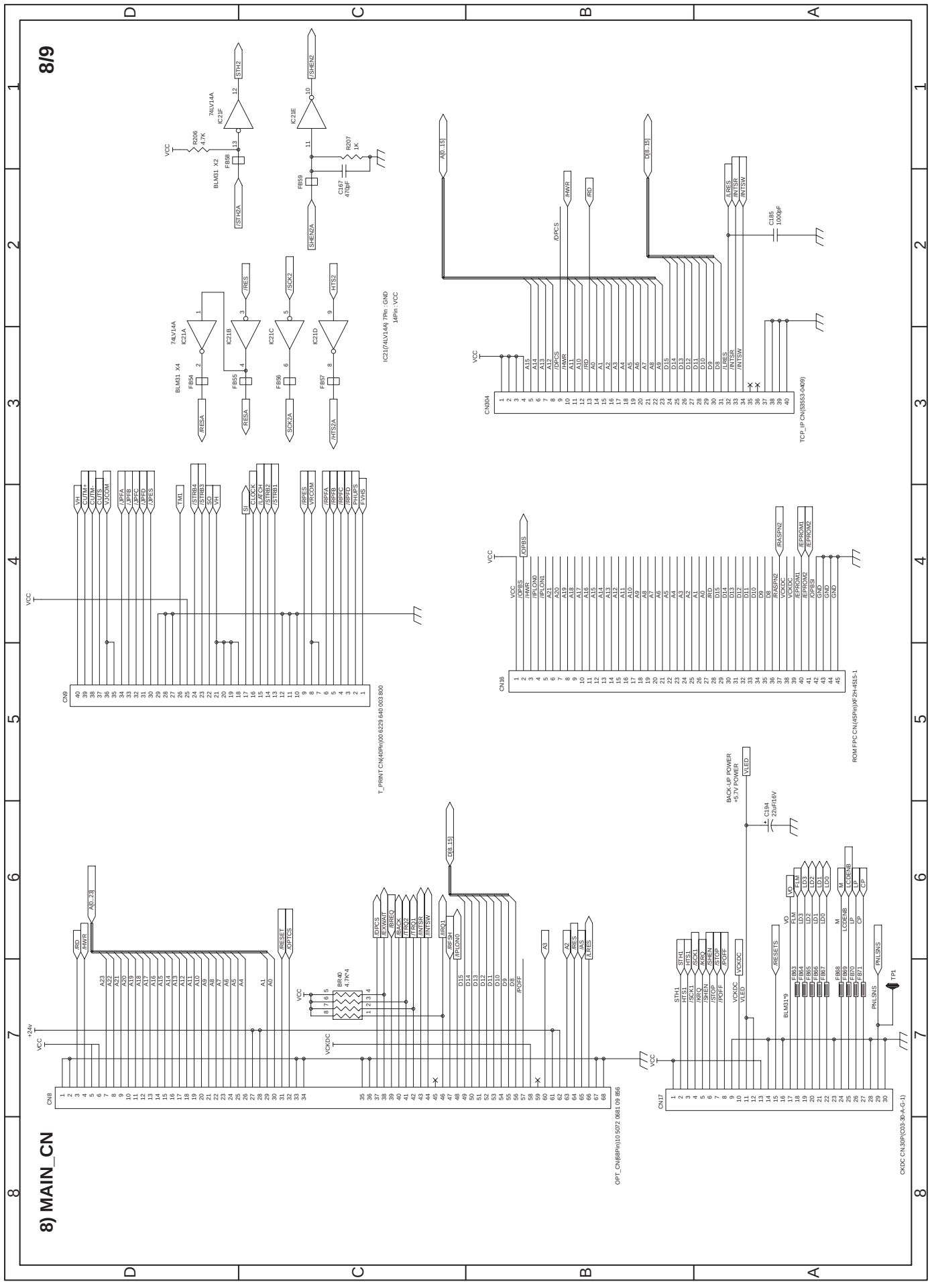

3/9
3) GATE ARRAY
G/A

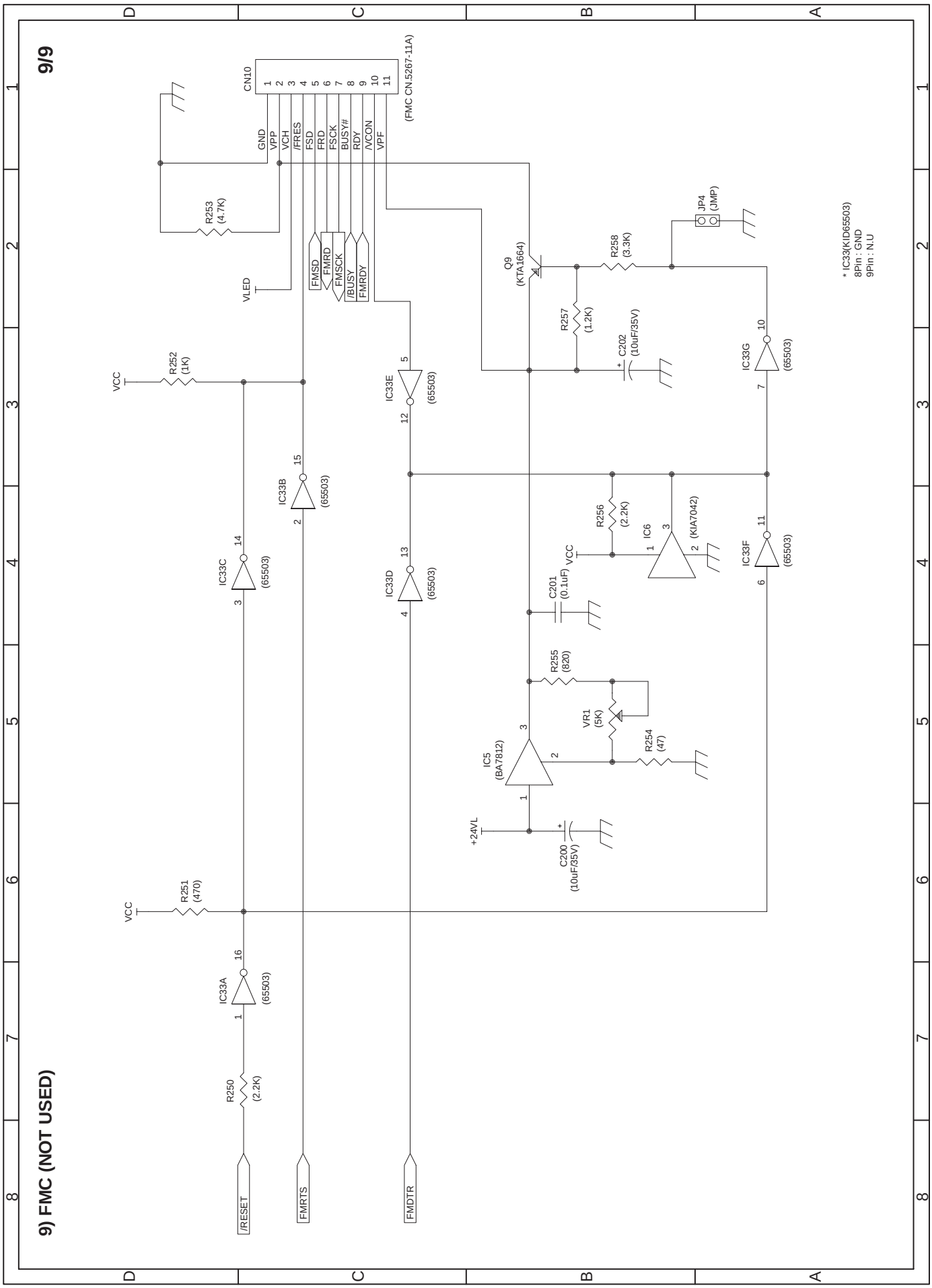

4/9
4) FLASH ROM
IC3
LH28F016SUT
IC3A
(MBM29F160(FLASH 16M))
IC4
(7S04FU)
NOT USED
IC35A (74LS125)
IC35B (74LS125)
IC35C (74LS125)
IC35D (74LS125)
* IC25 7Pin : GND 14Pin : VCC
C62 0.1uF
C63 10uF/16V
IC3 VCC -- GND
C64 100pF
R92
R93 0
R94 1K
D[8..15]
D[0..7]
A[0..21]
/IPLON0
/FROS1
/RD
/HWR
/RES
/FVPON
NORDY
VCC

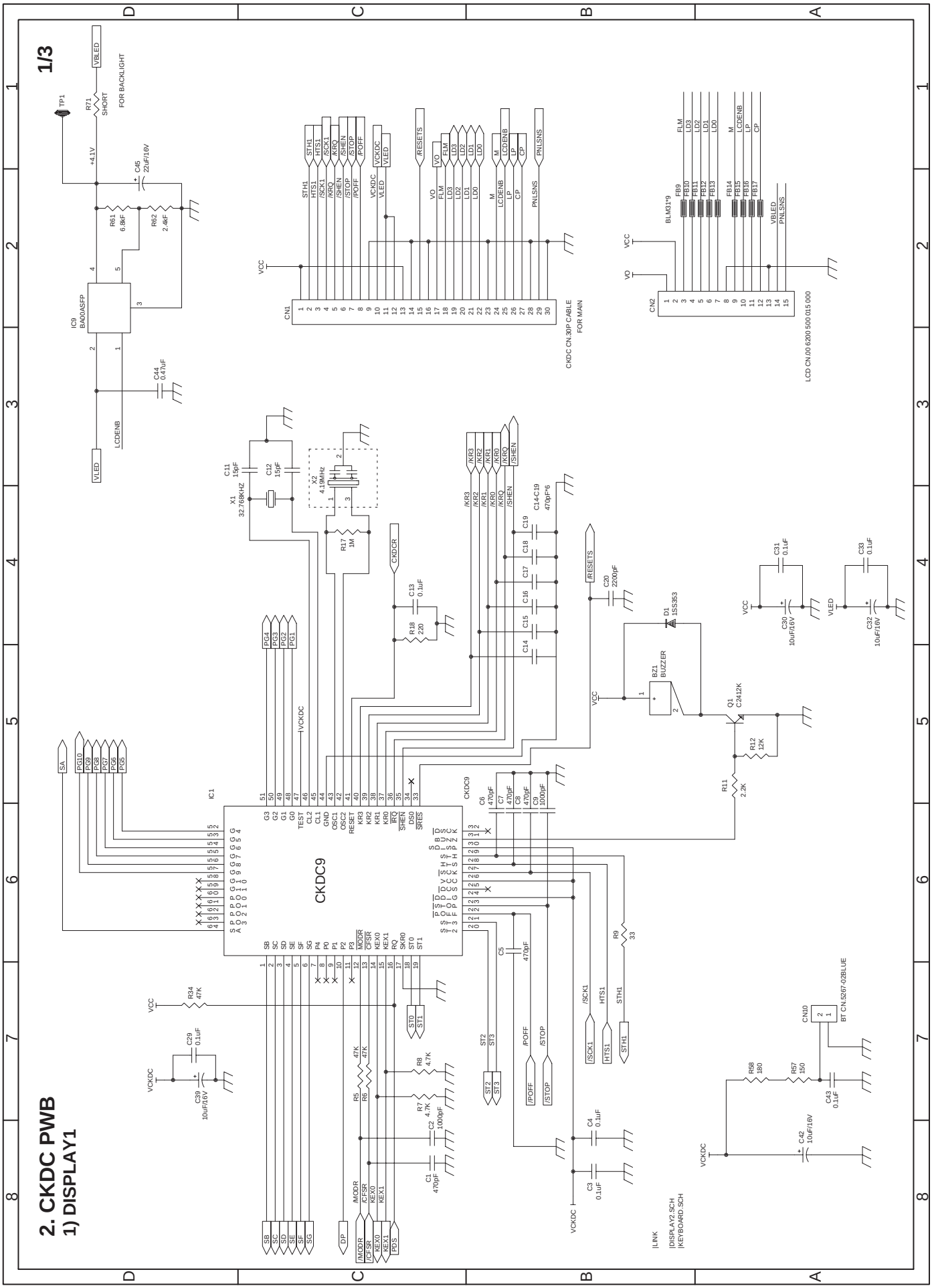

5/9
[POFF]
5) LCDC_MEMORY
IC28
(K1A7046F)
/POFF
C190 1000pF
VCC
R227 4.7K
D10
(1SS353)
R226 56K
IC27A
BA10393
R245 56K
IC27B
+24V
R241 *150F
R242 *150F
R243 2.2KF
R244 2KF
C240 0.1uF
R225 3.9K(1/4W)
ZD3 RD4.3MB1
R222 9.1KF
R223 9.1KF
R224 4.7KF
C189 1uF/50V
/RASPN1
/RASPN2
(OPT RAM)
IC24B 74LV00A
IC24A 74LV00A
IC24D 74LV00A
IC24C 74LV00A
VCKDC
/RESET
C173 100pF
C172 1000pF
RASPN1
RASPN2
7PIN.GND
C171 1000pF
R208 10K
/RESETS
D[8..15]
A[0..13]
LCDENB
IC22
LCD Controller
M66271FB
LCDC(M66271FP)
MPUCLK
OSC1
CP
LP
UD0
UD1
UD2
UD3
FLM
/RESET
/WAIT
/MCS
/RD
/HWR
/WR
/CS
C236 0.1uF
C235 10uF/16V
/HWR
/RD
C170 100pF
IC23
4M-SRAM
TSOP
C168 0.1uF
C169 (10uF/16v)
A[0..18]

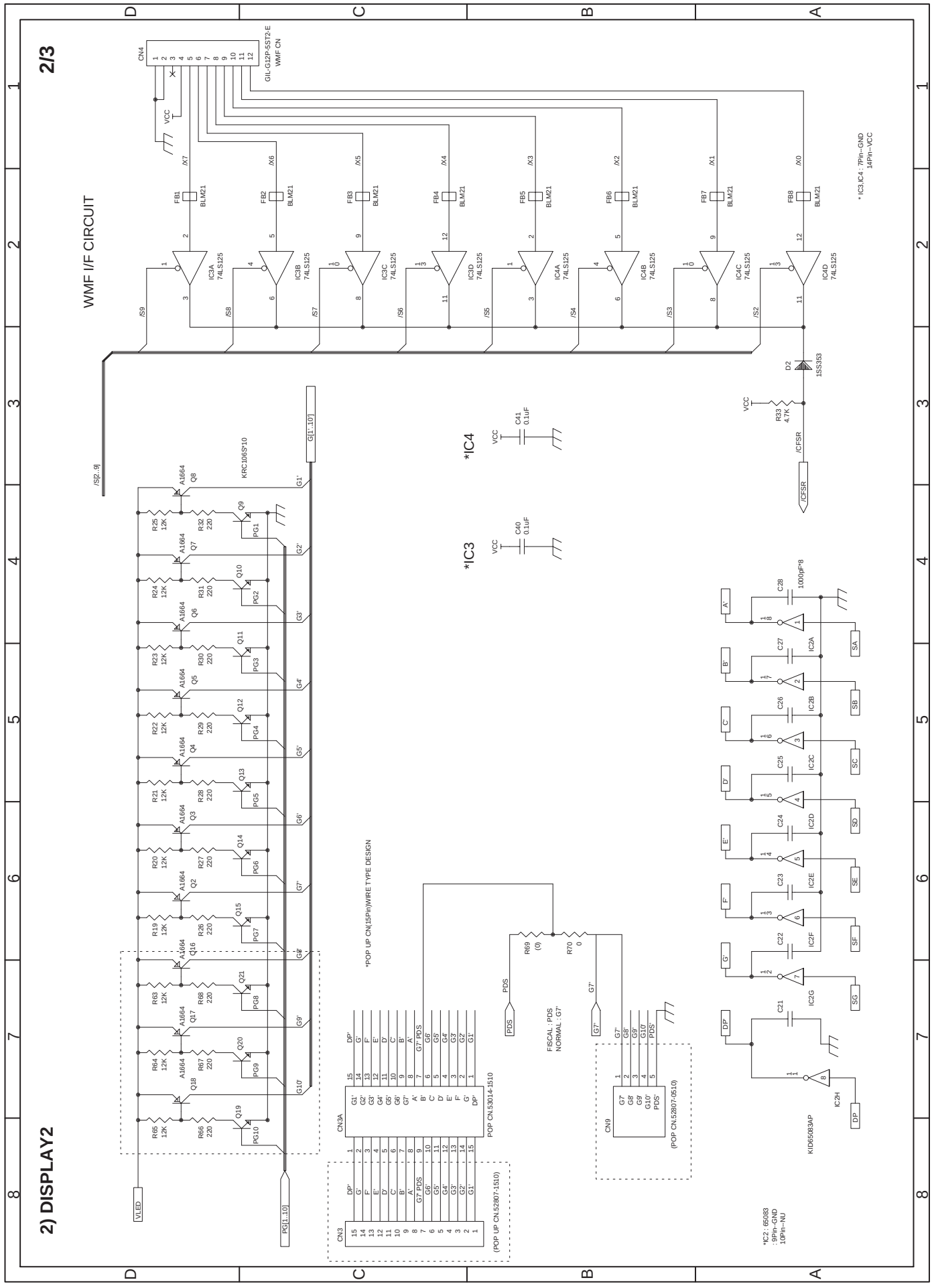

6/9
< RS232C RELAY PWB >
TO MAIN
BY CABLE
CN401
CN402
CN403
CH1
CH8
D-SUB 9Pin
MODULAR(RJ45)
S401
S404_1
S404_2
S403_1
S403_2
JMP
PF401
POLY SW
R401 (R1)
(0)
RS232C RELAY CABLE CN(20Pin,2mmPitch)
< TCP_IP(RJ45),UPP16DP,MCR RELAY PWB >
TO MAIN
CN501
CN502
CN503
CN504
CN505
BPR6(0.109)CRING
FB901
UPP16DP CN-53014-1010
MCR CN-33512-1110
TCP/IP CN-53014-0510
UPP16DP,MCR RELAY CABLE CN(20Pin,2mmPitch)
6) RS232C
[ CH1 ]
[ CH8 ]
IC19
IC20
MAX3241
CN6
* CN6 :3Pin-10Pin
FOR D-SUB 9Pin
CHANNEL 1
FOR RS232C RELAY PWB
* CN6 :11Pin-20Pin
FOR MODULAR RJ45
CHANNEL 8
FOR RS232C RELAY PWB
* CN6 :21Pin-29Pin
FOR ETHERNET(TRJ45),UPP16DP,MCR
RELAY PWB
FOR UPP16DP
* CN6 :30Pin-40Pin
FOR ETHERNET(TRJ45),UPP16DP,MCR
RELAY PWB
FOR MCR
RELAY CABLE CN4(4Pin,2mmPitch))
F5 (CP5)
T500mmA250V(6.1*3)
+24V
VCC

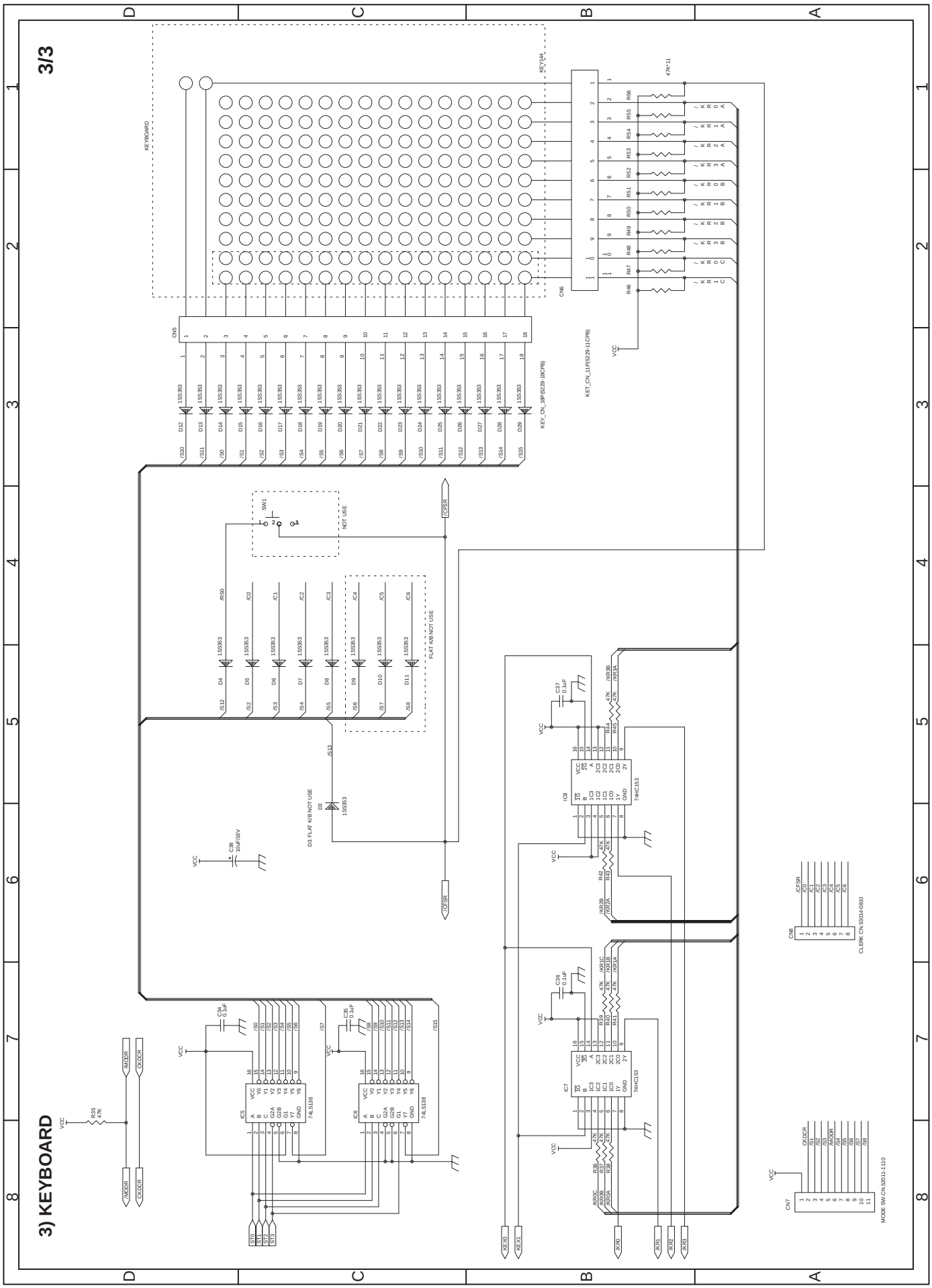

7/9
7) DRAWER_MCR
<DRAWER>
<MCR>
IC8
TD62308F
COM
VCC1
VCC2
GND
+24V
VRES
C99
0.1uF
/DR0
/DR1
/DRAW0
/DRAW1
CN4
CN5
5046-03A
DRAWER CN1
DRAWER CN0
FB11
BFR601009C8NG
FB8
FB9
FB10
C87
C89
C86
C88
DRSNS
DOPS
R121
47K
C90
1000pF
R120
2.2K
R119
10K
VCC
R107
4.7K
BR19
4.7K*4
BR20
4.7K*4
R113
10K
BR21
BR22
10K*4
CLS1
RDD1
RCP1
CLS2
RDD2
RCP2
CLS3
RDD3
RCP3
FB2
FB3
FB4
FB5
FB6
FB7
FB60
FB61
FB62
BLM31*9
CLS1#
RDD1#
RCP1#
CLS2#
RDD2#
RCP2#
CLS3#
RDD3#
RCP3#

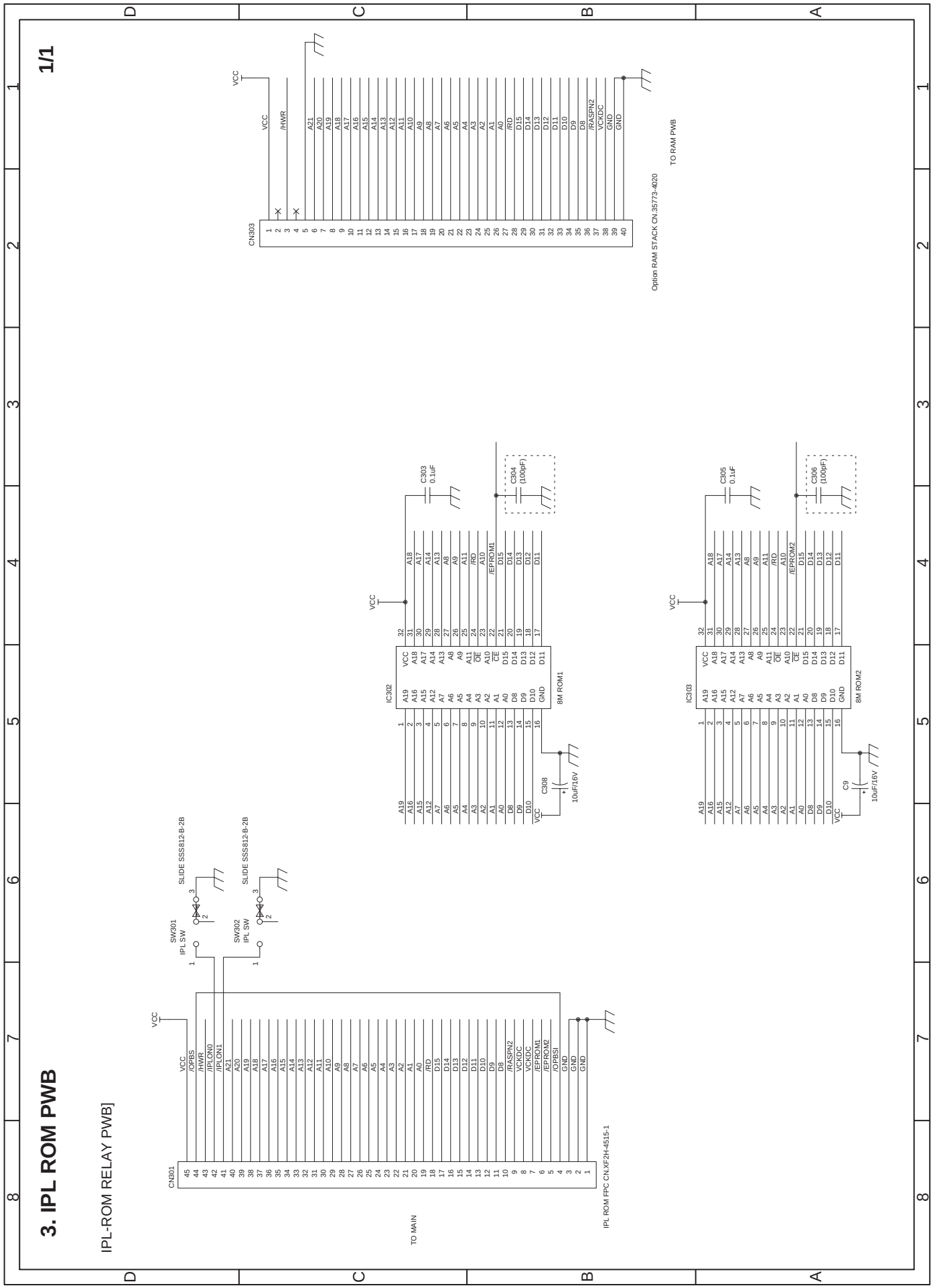

8/9
8) MAIN_CN
IC21(74LV14A) 7Pin : GND
14Pin : VCC
T_PRINT CN(40Pin)00 6229 640 003 800
TCP_IP CN(53553-0409)
ROM FPC CN.(45Pin)XF2H-4515-1
OPT_CN(68Pin)10 5072 0681 09 856
CKDC CN.30P(C03-3X-A-G-1)
BACK-UP POWER
+5.7V POWER

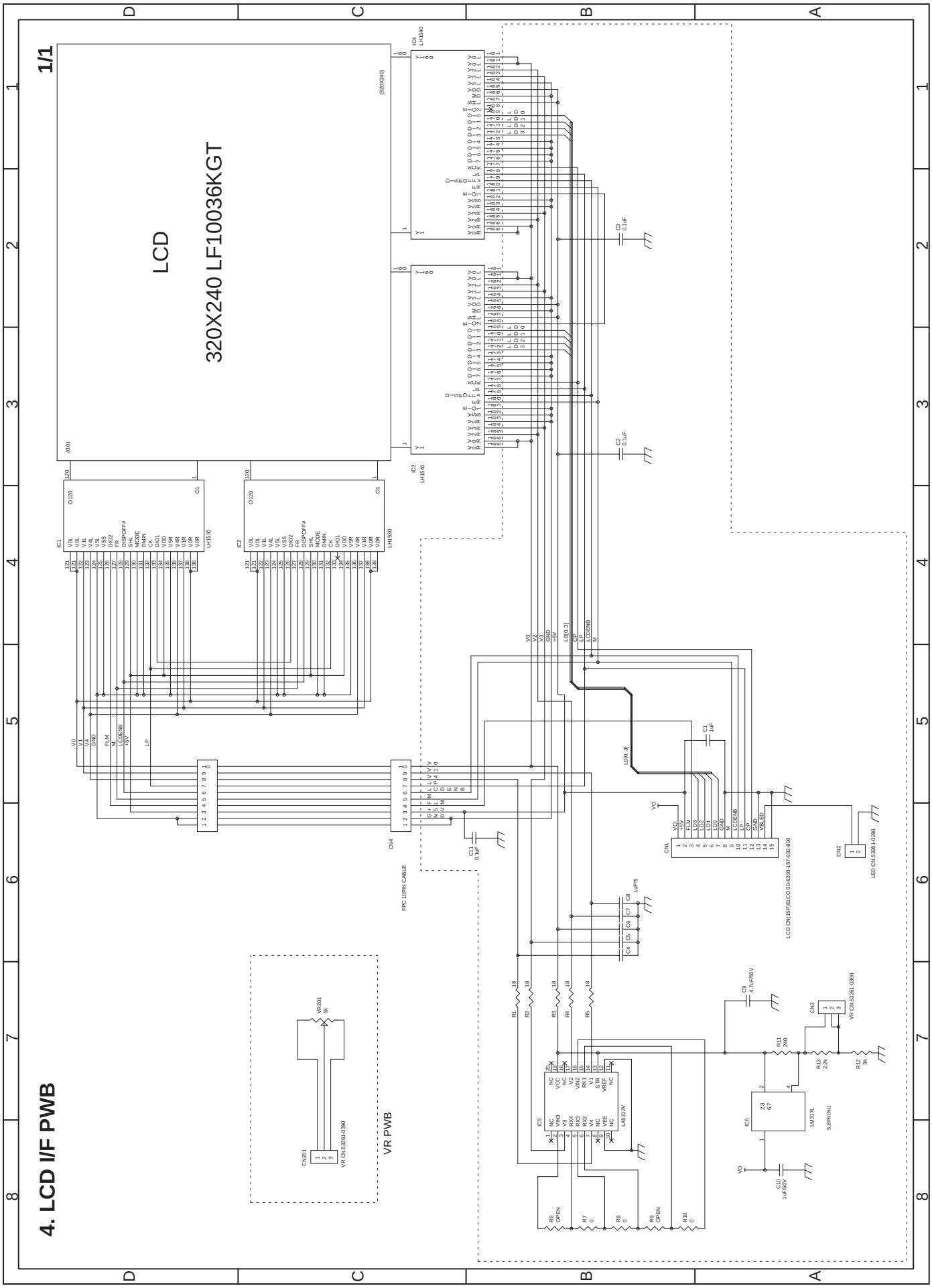

9/9
9) FMC (NOT USED)
CN10
(FMC CN.5267-11A)
GND
VPP
VCH
/FRES
FSD
FRD
FSCK
BUSY#
RDY
/VCON
VPF
R253 (4.7K)
VLED
FMSD
FMRD
FMSCK
/BUSY
FMRDY
Q9 (KTA1664)
R258 (3.3K)
JP4 (JMP)
R257 (1.2K)
C202 (10uF/35V)
* IC33(KID65503)
8Pin : GND
9Pin : N.U
R252 (1K)
VCC
IC33E (65503)
IC33G (65503)
IC33B (65503)
IC33C (65503)
IC33D (65503)
IC33A (65503)
IC33F (65503)
R256 (2.2K)
IC6 (KIA7042)
C201 (0.1uF)
R255 (820)
VR1 (5K)
R254 (47)
IC5 (BA7812)
+24VL
C200 (10uF/35V)
R251 (470)
R250 (2.2K)
/RESET
FMRTS
FMDTR


2. CKDC PWB
1) DISPLAY1
1/3
CKDC9
IC1
IC9
BA00ASFP
CN1
CN2
CKDC CN.30P CABLE
FOR MAIN
LCD CN.00 6200 500 015 000
BT CN.5267-02BLUE
FOR BACKLIGHT
|LNK
|DISPLAY2.SCH
|KEYBOARD.SCH


2/3
WMF I/F CIRCUIT
2) DISPLAY2
CN4
GIL-G12P-5ST2-E
WMF CN
VCC
/X7
/X6
/X5
/X4
/X3
/X2
/X1
/X0
FB1 BLM21
FB2 BLM21
FB3 BLM21
FB4 BLM21
FB5 BLM21
FB6 BLM21
FB7 BLM21
FB8 BLM21
IC3A 74LS125
IC3B 74LS125
IC3C 74LS125
IC3D 74LS125
IC4A 74LS125
IC4B 74LS125
IC4C 74LS125
IC4D 74LS125
/S9
/S8
/S7
/S6
/S5
/S4
/S3
/S2
* IC3,IC4 : 7Pin--GND
14Pin--VCC
D2
1SS353
R33
4.7K
/CFSR
*IC4
*IC3
C41
0.1uF
C40
0.1uF
/S[2..9]
G[1'..10']
KRC106S*10
A1664
Q8
Q9
Q7
Q10
Q6
Q11
Q5
Q12
Q4
Q13
Q3
Q14
Q2
Q15
Q16
Q21
Q17
Q20
Q18
Q19
R25 12K
R32 220
R24 12K
R31 220
R23 12K
R30 220
R22 12K
R29 220
R21 12K
R28 220
R20 12K
R27 220
R19 12K
R26 220
R63 12K
R68 220
R64 12K
R67 220
R65 12K
R66 220
PG1
PG2
PG3
PG4
PG5
PG6
PG7
PG8
PG9
PG10
G1'
G2'
G3'
G4'
G5'
G6'
G7'
G8'
G9'
G10'
VLED
PG[1..10]
*POP UP CN(15Pin)WIRE TYPE DESIGN
CN3A
POP CN:53014-1510
(POP UP CN:52807-1510)
PDS
R69
(0)
R70
0
FISCAL : PDS
NORMAL : G7'
CN9
(POP CN:52807-0510)
IC2A
IC2B
IC2C
IC2D
IC2E
IC2F
IC2G
IC2H
C28 1000pF*8
C27
C26
C25
C24
C23
C22
C21
SA
SB
SC
SD
SE
SF
SG
DP
KID65083AP
*IC2 : 65083
:9Pin-GND
10Pin--NU

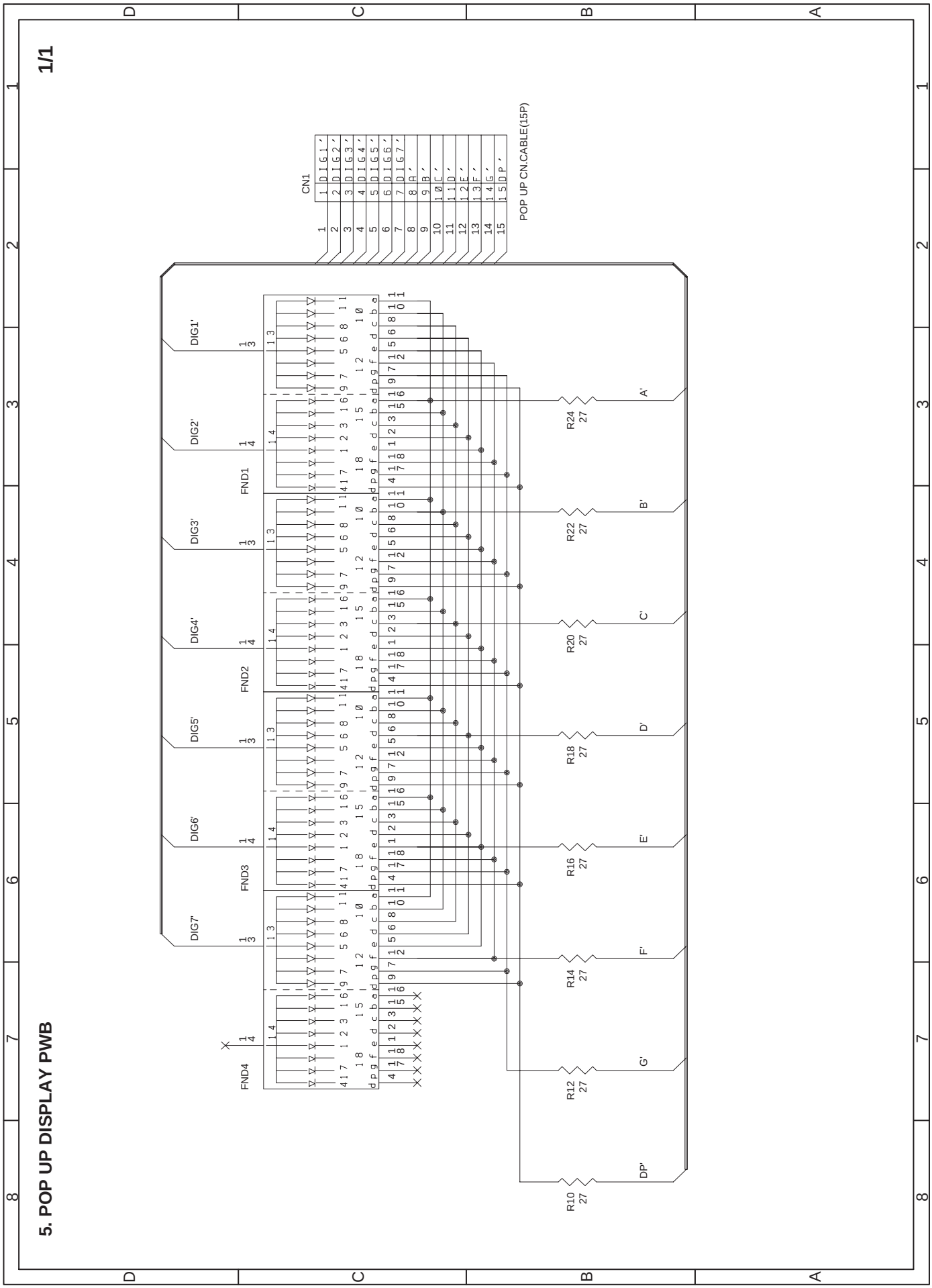

3/3
3) KEYBOARD
KEYBOARD
KEY144
CN6
CN5
KEY_CN_18P(6229-18CP8)
KET_CN_11P(6229-11CP8)
47K*11
SW1
NOT USE
FLAT K/B NOT USE
D3 FLAT K/B NOT USE
/CS1R
/CS5R
/RS0
/IC0
/IC1
/IC2
/IC3
/IC4
/IC5
/IC6
/KR3B
/KR3A
/KR1C
/KR1B
/KR1A
/KR0C
/KR0B
/KR0A
/KEX0
/KEX1
/KR0
/KR1
/KR2
/KR3
IC5
IC6
IC7
IC8
74LS138
74HC153
CLERK CN.S3014-0810
MODE SW.CN.S3111-1110
/MODR
CKDCR
VCC


1/1
3. IPL ROM PWB
IPL-ROM RELAY PWB]
CN301
TO MAIN
IPL ROM FPC CN.XF2H-4515-1
SW301
IPL SW
SLIDE SSS812-B-2B
SW302
IPL SW
SLIDE SSS812-B-2B
IC302
8M ROM1
IC303
8M ROM2
C303
0.1uF
C304
(100pF)
C305
0.1uF
C306
(100pF)
C308
10uF/16V
C9
10uF/16V
CN303
Option RAM STACK CN.35773-4020
TO RAM PWB


4. LCD I/F PWB
1/1
LCD
320X240 LF10036KGT
(320X240)
(0,0)
IC1
IC2
IC3
IC4
LH1530
LH1540
O120
O1
C1 1µF
C2 0.1uF
C3 0.1uF
C4 0.1uF
C5
C6
C7
C8
C9 1uF*5
C9 4.7uF/50V
C10 1uF/50V
C11 0.1µF
CN1
CN2
CN3
CN4
CN201
LCD CN(15P)ELCO 09-6200-157-032-800
LED CN S3261-0290
VR CN S3261-0390
FPC 10PIN CABLE
VR201 5k
VR PWB
R1 18
R2 18
R3 18
R4 18
R5 18
R6 OPEN
R7 0
R8 0
R9 OPEN
R10 0
R11 240
R12 3k
R13 22k
IC5 LA5312V
IC6 LM317L
5.8PinNU
LD0..3]
LCDENB
FLM
LP
CP
M
VO
+5V
GND

## 5. POP UP DISPLAY PWB

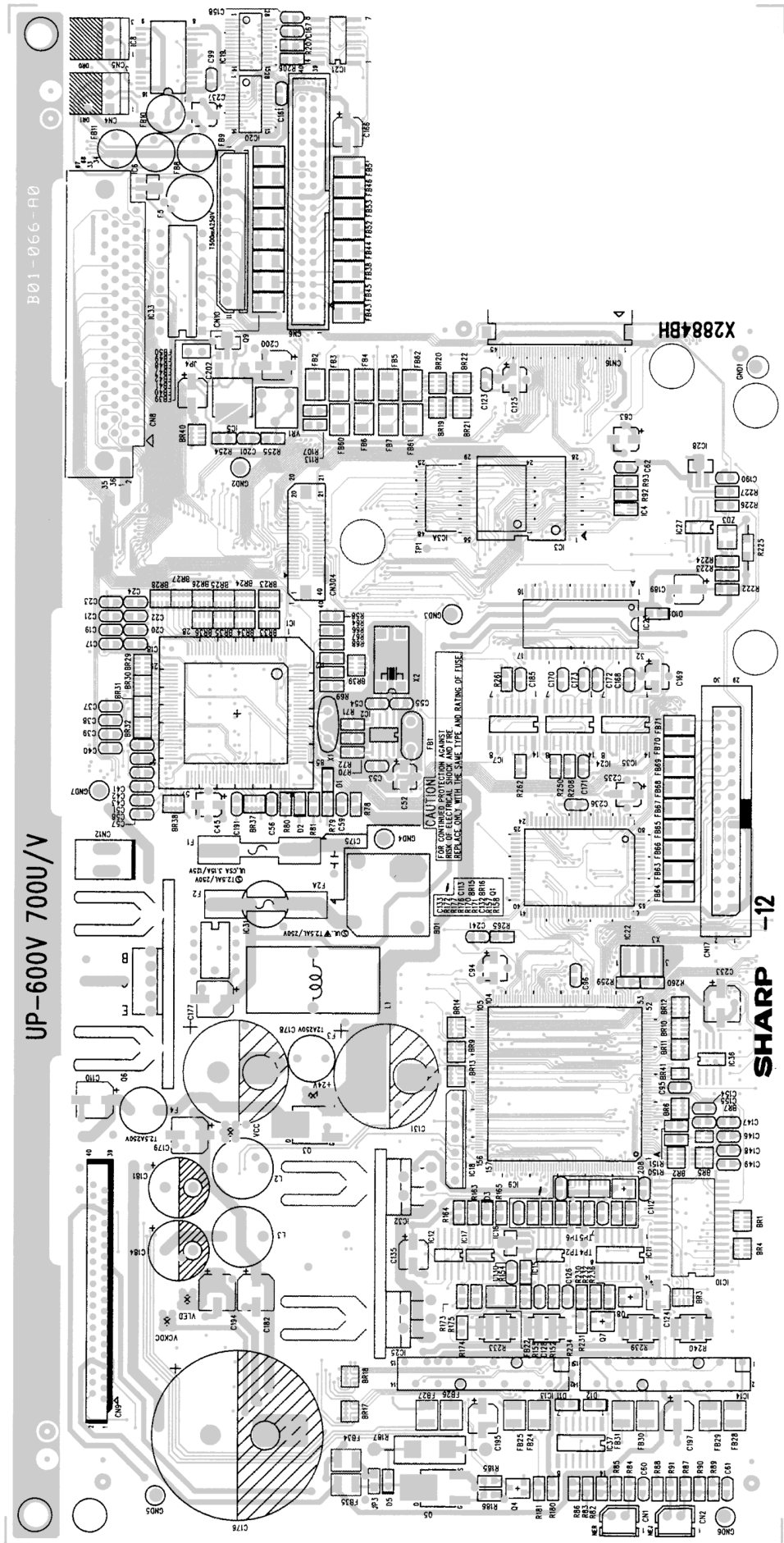
1/1



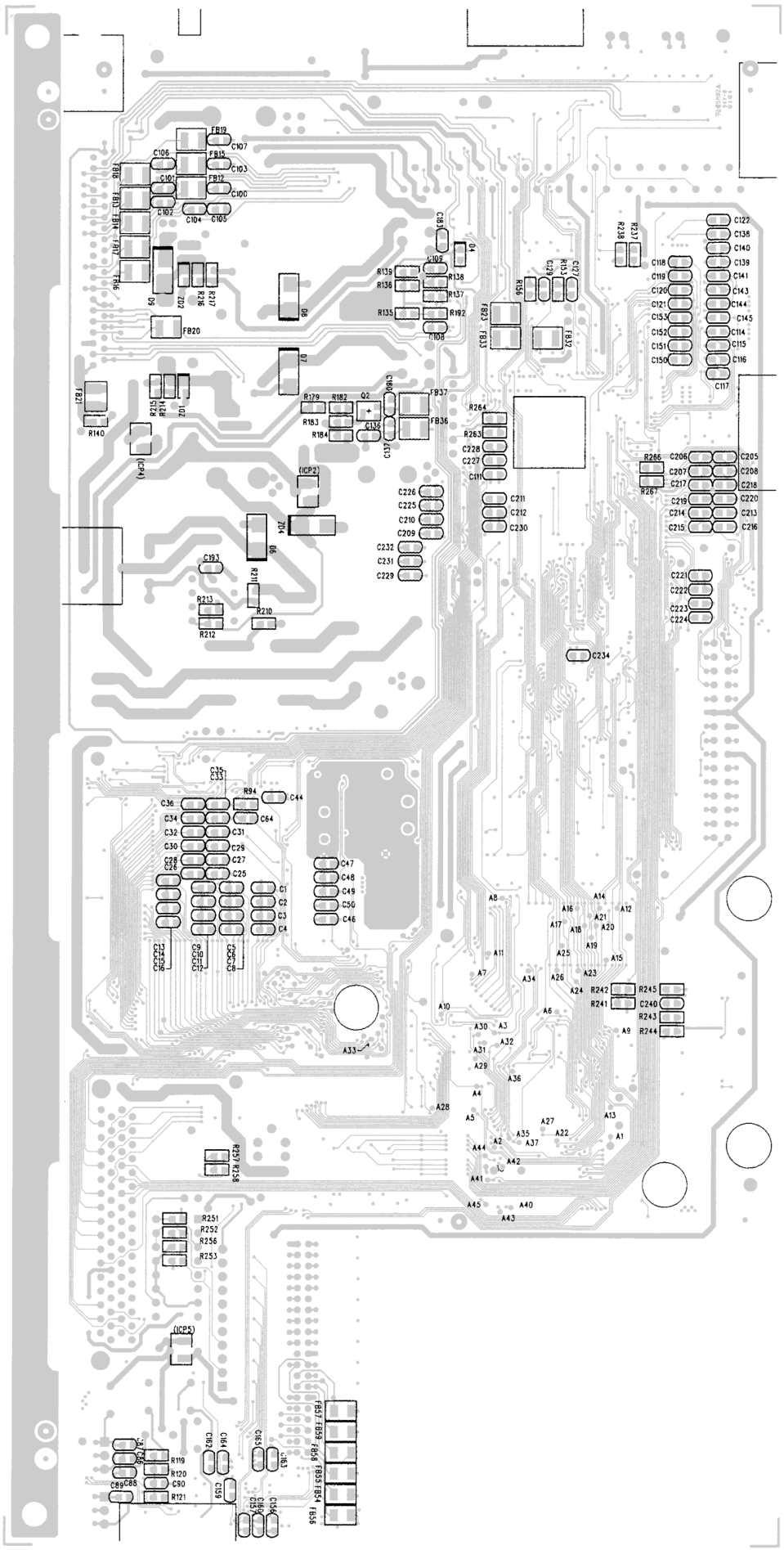
# CHAPTER 8. PWB LAYOUT

## 1. MAIN PWB

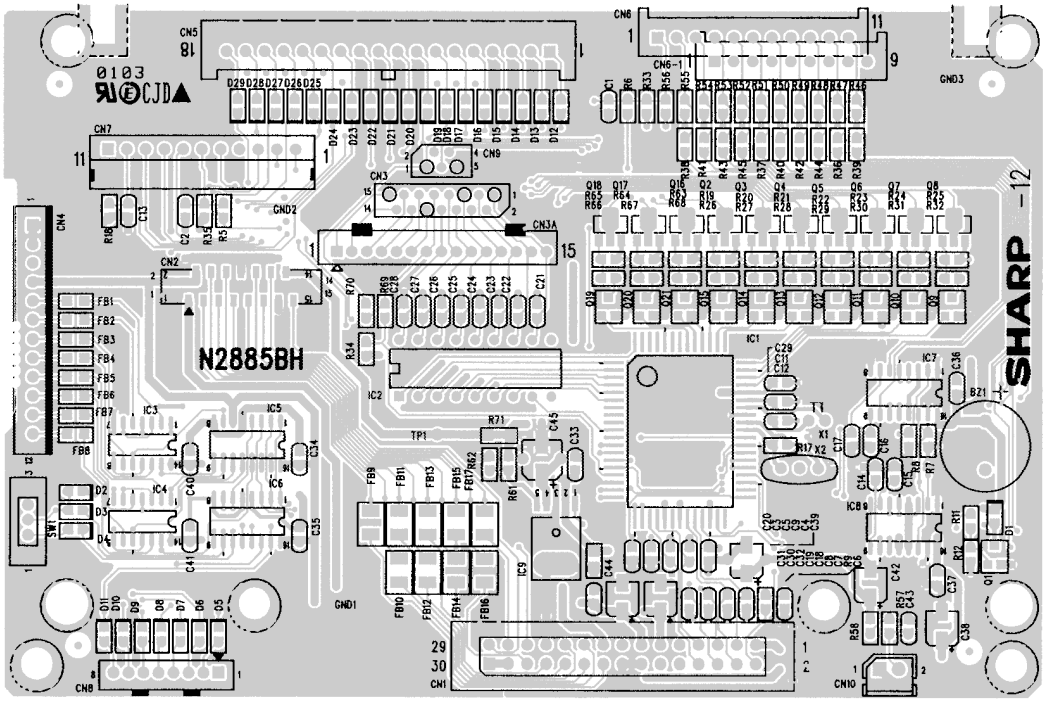
### 1) A side



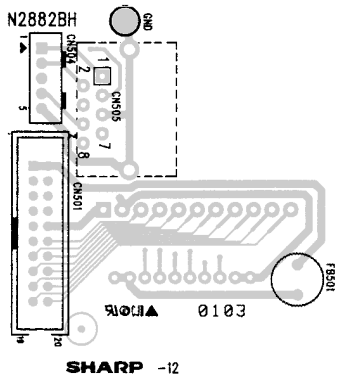
## 2) B side



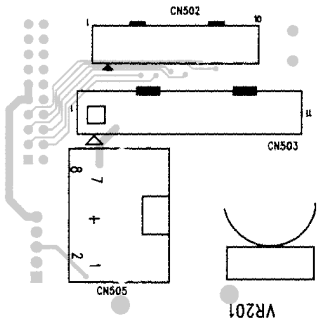
## 2. CKDC PWB




## 3. DISPLY & MCR PWB 1) A side

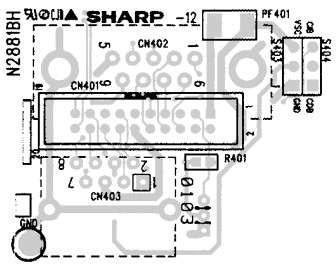



## 2) B side

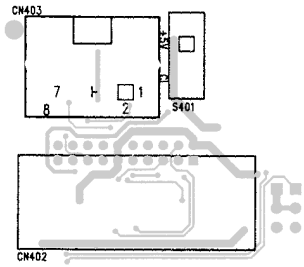



## 4. RS232 RELAY PWB 1) A side

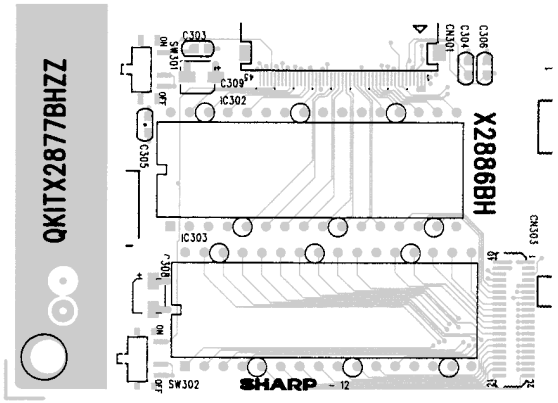
QKITN2878BHZZ



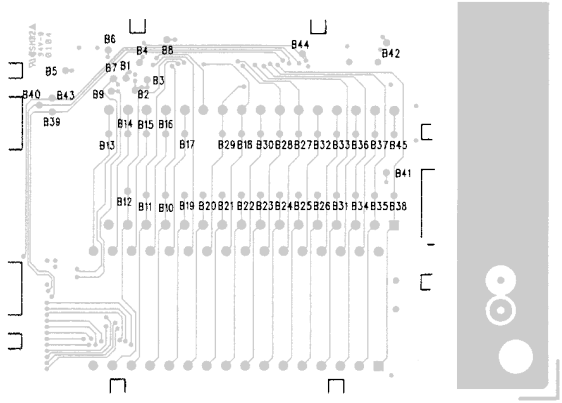

## 2) B side



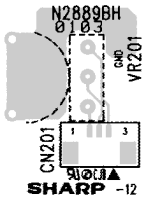
## 5. IPL ROM PWB 1) A side



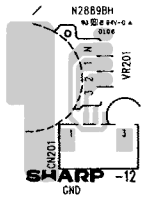

## 2) B side



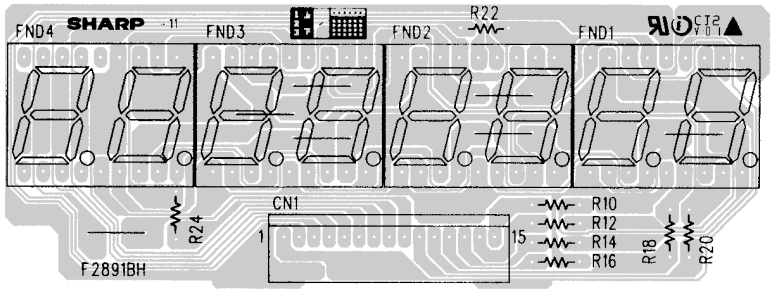
## 6. TCP/IP RELAY PWB



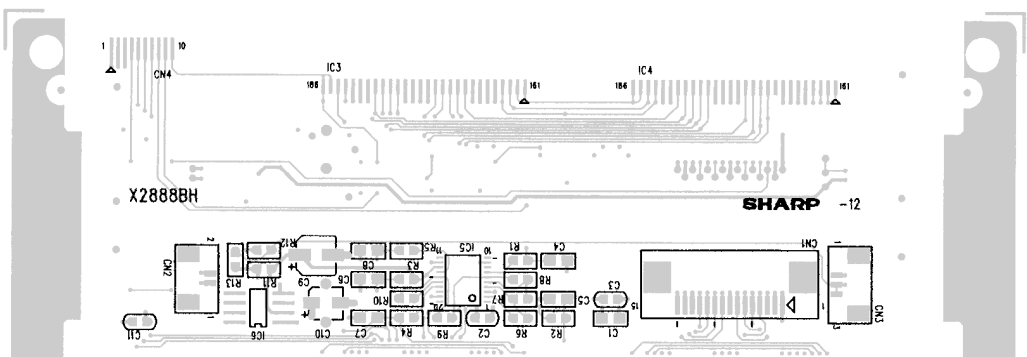

## 7. VR PWB




## 8. POP UP DISPLY




## 9. LCD I/F PWB



# SHARP PARTS GUIDE

## MODEL UP-600 UP-700

**PRINTER:PR-58HA**
**SRV key :LKGIM7113BHZZ**
**(for TQ,TS,KA,KB)**

CONTENTS


1 Top cabinet etc.(UP-600)
2 Top cabinet etc.(UP-700)
3 Bottom cabinet etc.
4 Drawer box unit(SK423 type)[for KA,KB]
5 Packing material & Accessories
6 Main PWB unit
7 IPL PWB unit
8 CKDC PWB unit
9 RS232C PWB unit
10 MCR pole PWB unit
11 Pop up PWB unit
12 LCD HS unit
13 Volume PWB unit
14 Articles for copnsumption
15 Service options & Service tools
■ Index


Parts marked with "⚠" are important for maintaining the safety of the set.Be sure replace these parts with specified ones for maintaining the safety and performance of the set.

### Table of destinations

| SELECTION CODE | COUNTRIES |
|---|---|
| U | U.S.A., Guam |
| A | Canada |
| TS | Germany |
| TQ | SEEG territory other than Germany (Stamp:English) |
| TR | SEEG territory other than Germany (Stamp:English) |
| TM | SEEG(FRANCE:Metro-VM) (Stamp:French) |
| KB | U.Kingdom |
| KA | Australia |

| SELECTION CODE | COUNTRIES |
|---|---|
| K | Korea |

| SELECTION CODE | COUNTRIES |
|---|---|
| SB | Saudi Arabia (127V area) |
| SBA | Saudi Arabia (220V area) |
| SC | Taiwan |
| SD | Venezuela |
| SE | Hong Kong |
| SG | Lebanon, Syria, Greece, Pakistan, Iran, Egypt, Thailand, Iraq, Mauritius, Seychelles, Tahiti, Jordan, Sudan, Turkey |
| SH | South Africa (U.S.A. version) |
| SHE | South Africa (Europe version) |
| SJ | Philippines (Europe version) |
| SJ2 | Philippines (U.S.A. version) |
| SM | Kuwait, Qatar, Oman, UAE, Malta, Bahrain |
| SMT | Nigeria, Yemen, Kenya |

| SELECTION CODE | COUNTRIES |
|---|---|
| RA1 | Morocco, Algeria, Tunisia, West Africa |
| RA2 | Chile, Uruguay, Peru, Argentina, Paraguay |
| RA5 | Sri Lanka |

| SELECTION CODE | COUNTRIES |
|---|---|
| RB3 | Indonesia |
| RB4 | |
| RB5 | Cyprus |
| RB6 | Panama |
| RB7 | Barbados |
| RB8 | Malaysia (U.S.A. version) |

| SELECTION CODE | COUNTRIES |
|---|---|
| RC1 | Malaysia (Europe version) |
| RC2 | Singapore |
| RC5 | Dominican Republic, Ecuador |

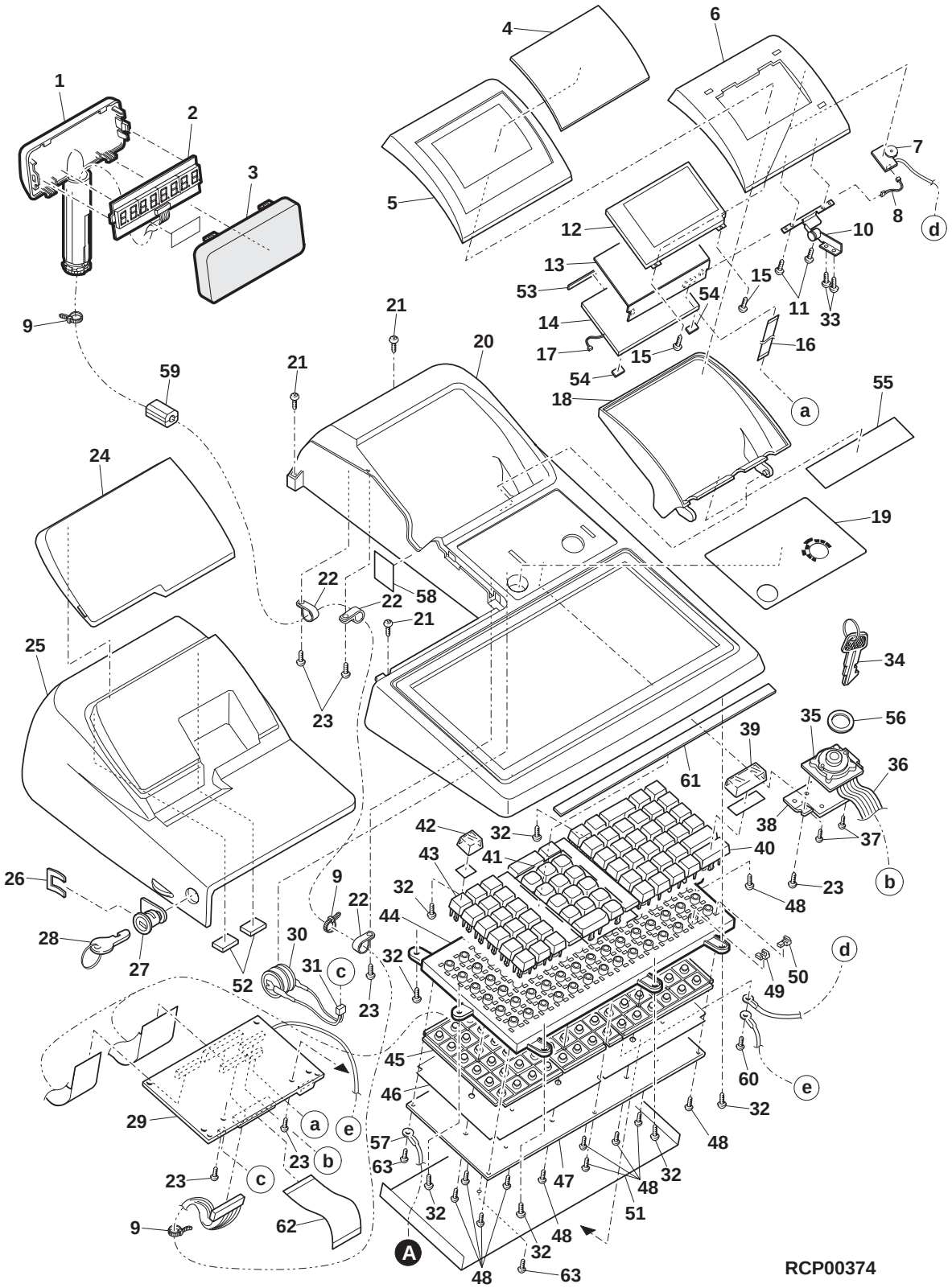
# 1 Top cabinet etc.(UP-600)

| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION |
|---|---|---|---|---|---|
| 1 | GCABB7861BHZZ | AN | | D | Pop up cabinet |
| 2 | CPWBF2891BH01 | BR | N | E | Pop up PWB unit |
| 3 | PFiLW6961BHZZ | AP | | D | Pop up filter |
| 4 | HPNLH2483BHZZ | AW | N | D | LCD panel |
| 5 | PFiLW2008BHZZ | AS | N | D | LCD filter |
| 6 | GCABF2560BHZZ | AQ | N | D | LCD front cabinet |
| 7 | CPWBN2889BH01 | BF | N | E | Volume PWB unit |
| 8 | QCNW-3119BHZZ | AL | N | C | Volume cable |
| 9 | LBNDJ2003SCZZ | AA | | C | Cable band |
| 10 | MHNG-2327BHZA | AX | N | C | LCD hinge |
| 11 | XUPSD40P08000 | AA | | C | Screw (4×8) |
| 12 | LANGK2898BHZZ | AM | N | C | LCD angle |
| 13 | DUNTK4234BHZZ | BW | N | E | LCD H/S PWB unit |
| 14 | RLMPY2000RCZZ | BF | N | B | LED backlight |
| 15 | XJSSD30P08000 | AA | | C | Screw (3×8) |
| 16 | QCNW-3133BHZZ | AK | N | C | Flat cable (15Pin)(1mmPitch) |
| 17 | QCNW-3118BHZZ | AG | N | C | LED backlight cable |
| 18 | GCABR2561BHZA | AS | N | D | LCD rear cabinet |
| 19 | HPNLC6829BHSA | AM | N | D | Deco panel |
| 20 | GCABB2558BHZA | BE | N | D | Top cabinet |
| 21 | XBBSC30P06000 | AA | | C | Screw (3×6) |
| 22 | LHLDW0008SCZZ | AA | | C | Cable holder (HP-5N) |
| 23 | XEBSD30P08000 | AA | | C | Screw (3×8) |
| 24 | PFiLW2006BHZZ | AU | N | D | Journal filter |
| 25 | GCŌVA2514BHZA | BA | N | D | Printer cover |
| 26 | MSPRK6730BHZZ | AC | | C | Lock spring |
| 27 | LKGiW7355BHZB | BB | N | B | Lock(body) (Until Feb. 2001 production.)[TQ,TS,KB] |
| | LKGiW7355BHZZ | AX | | B | Lock(body) (From Mar. 2001 production.) |
| 28 | LKGiM7356BHZZ | AK | | B | Printer cover lock key |
| 29 | CPWBN2885BH01 | BS | N | E | CKDC PWB unit [include No.62] |
| 30 | UBATZ6661BHZZ | BA | | B | Battery (Ni-MH) |
| 31 | QCNW-7880BHZZ | AF | | C | Battery cable |
| 32 | XEBSD30P10000 | AA | | C | Screw (3×10) |
| 33 | XUBSD40P10000 | AA | | C | Screw (4×10) |
| 34 | LKGiM7110BHZZ | AE | | B | MA key (MA) |
| | LKGiM7111BHZZ | AE | | B | OP key (OP) |
| | LKGiM7129BHZZ | AE | | B | SM key (SM) |
| 35 | LKGiW0001BHZA | AS | | B | Mode sw(body) |
| 36 | QCNW-3117BHZZ | AG | N | C | Mode sw cable |
| 37 | XUPSD23P08000 | AA | | C | Screw (2.3×8) |
| 38 | LANGT7582BHZZ | AL | | C | Mode SW angle |
| 39 | JKNBZ6899BHSA | AK | | C | Key cap (1×2) |
| 40 | JKNBZ6898BHZZ | AH | | C | Key top (1×2) |
| 41 | JKNBZ6908BHZZ | AK | | C | Key top (.) |
| | JKNBZ6909BHZZ | AK | | C | Key top (X) |
| | JKNBZ6911BHZZ | AK | | C | Key top (1) |
| | JKNBZ6912BHZZ | AK | | C | Key top (2) |
| | JKNBZ6913BHZZ | AK | | C | Key top (3) |
| | JKNBZ6914BHZZ | AK | | C | Key top (4) |
| | JKNBZ6915BHZZ | AK | | C | Key top (5) |
| | JKNBZ6916BHZZ | AK | | C | Key top (6) |
| | JKNBZ6917BHZZ | AK | | C | Key top (7) |
| | JKNBZ6918BHZZ | AK | | C | Key top (8) |
| | JKNBZ6919BHZZ | AK | | C | Key top (9) |
| | JKNBZ6905BHZZ | AF | | C | Key top (0) |
| | JKNBZ6920BHZZ | AK | | C | Key top (00) |
| | JKNBZ6906BHZZ | AK | | C | Key top (000) |
| | JKNBZ6907BHZZ | AK | | C | Key top (CL) |
| 42 | JKNBZ6897BHSA | AH | | C | Key cap (1×1) |
| 43 | JKNBZ6896BHZA | AG | | C | Key top (1×1) |
| 44 | LFRM-6697BHZZ | BA | | D | Key frame |
| 45 | PGUMM6724BHZZ | AY | | C | Key rubber |
| 46 | CSHEP6833BH01 | BA | | C | Key sheet unit |
| 47 | LPLTM6698BHZZ | AV | | C | Base plate |
| 48 | XEBSD30P06000 | AA | | C | Screw (3×6) |
| 49 | LHLDZ6837BHZZ | AE | | C | Holder L (YELLOW) |
| 50 | LHLDZ6836BHZZ | AE | | C | Holder R (WHITE) |
| 51 | PSHEP2925BHZZ | AR | N | C | Water sheeet |
| 52 | PSHEP2928BHZZ | AF | N | C | Printer cover sheet |
| 53 | PCUSS2420BHZZ | AF | N | C | LCD cushion |
| 54 | PCUSS2422BHZZ | AC | N | C | LCD cushion (S) |
| 55 | PSHEP2937BHZZ | AG | N | C | LCD rear sheet |
| 56 | PCUSS2421BHZZ | AC | N | C | Mode sw cushion |
| 57 | QCNW-3137BHZZ | AE | N | C | Earth wire |
| 58 | PSHEP2938BHZZ | AE | N | C | Water sheet (S) (Until Feb. 2001 production.) |
| 59 | RCŌRF6700BHZZ | AS | | C | Core (BNF-14) |
| 60 | XJPSD30P08000 | AA | | C | Screw (3×8) |
| 61 | PCUSS2419BHZZ | AH | N | C | Keyboard cushion |
| 62 | QCNW-3114BHZZ | AX | N | C | CKDC CN.cable (30Pin) [CN1] |
| 63 | XJPSD30P06000 | AA | | C | Screw (3×6) |

## 1 Top cabinet etc.(UP-600)

| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION |
|---|---|---|---|---|---|
| 101 | T L A B H 2 5 4 5 B H Z Z | AX | N | D | Key label |
| 501 | K i − Ö K 2 3 6 8 B H Z Z | BN | N | E | Keyboard (NORMAL) [include No.39~50,101] |
| 502 | D U N T − 1 8 1 7 B H Z A | BE | N | E | Lock key unit (Printer) (Until Feb. 2001 production.)(include No.26~27) [TQ,TS,KB] |
| | D U N T − 1 8 1 7 B H Z Z | AY | | E | Lock key unit (Printer) (From Mar. 2001 production.)(include No.26~27) |
| | | | | | |
| | | | | | |

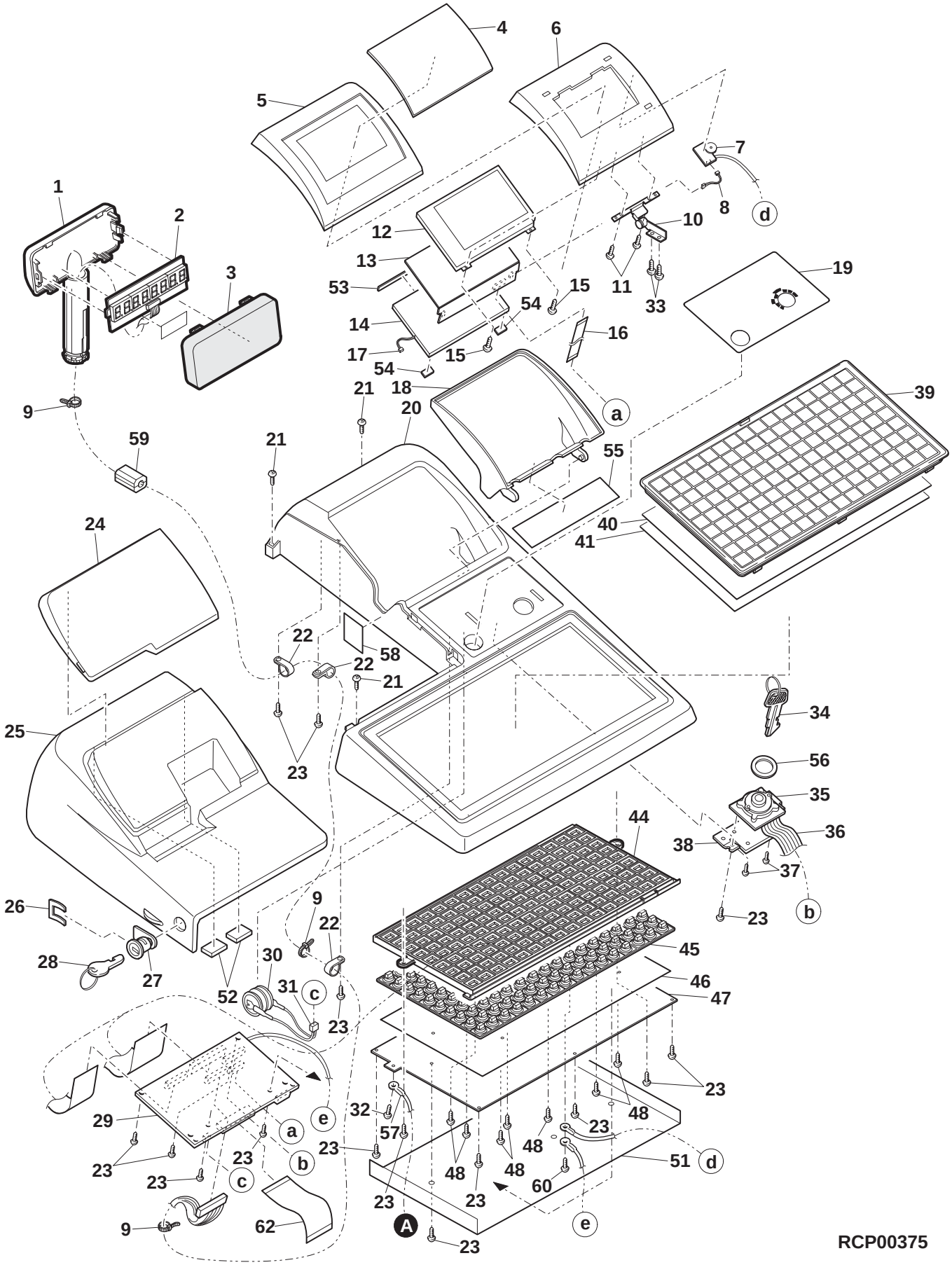
## 1 Top cabinet etc.(UP-600)



## 2 Top cabinet etc.(UP-700)

| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION |
|---|---|---|---|---|---|
| 1 | GCABB7861BHZZ | AN | | D | Pop up cabinet |
| 2 | CPWBF2891BH01 | BR | N | E | Pop up PWB unit |
| 3 | PFiLW6961BHZZ | AP | | D | Pop up filter |
| 4 | HPNLH2483BHZZ | AW | N | D | LCD panel |
| 5 | PFiLW2008BHZZ | AS | N | D | LCD filter |
| 6 | GCABF2560BHZZ | AQ | N | D | LCD front cabinet |
| 7 | CPWBN2889BH01 | BF | N | E | Volume PWB unit |
| 8 | QCNW-3119BHZZ | AL | N | C | Volume cable |
| 9 | LBNDJ2003SCZZ | AA | | C | Cable band |
| 10 | MHNG-2327BHZA | AX | N | C | LCD hinge |
| 11 | XUPSD40P08000 | AA | | C | Screw (4×8) |
| 12 | LANGK2898BHZZ | AM | N | C | LCD angle |
| 13 | DUNTK4234BHZZ | BW | N | E | LCD H/S PWB unit |
| 14 | RLMPY2000RCZZ | BF | N | B | LED backlight |
| 15 | XJSSD30P08000 | AA | | C | Screw (3×8) |
| 16 | QCNW-3133BHZZ | AK | N | C | Flat cable (15Pin)(1mmPitch) |
| 17 | QCNW-3118BHZZ | AG | N | C | LED backlight cable |
| 18 | GCABR2561BHZA | AS | N | D | LCD rear cabinet |
| 19 | HPNLC6829BHSB | AM | N | D | Deco panel |
| 20 | GCABB2559BHZA | BD | N | D | Top cabinet |
| 21 | XBBSC30P06000 | AA | | C | Screw (3×6) |
| 22 | LHLDW0008SCZZ | AA | | C | Cable holder (HP-5N) |
| 23 | XEBSD30P08000 | AA | | C | Screw (3×8) |
| 24 | PFiLW2006BHZZ | AU | N | D | Journal filter |
| 25 | GCŌVA2514BHZA | BA | N | D | Printer cover |
| 26 | MSPRK6730BHZZ | AC | | C | Lock spring |
| 27 | LKGiW7355BHZB | BB | N | B | Lock(body) (Until Feb. 2001 production.)[TQ,TS,KB] |
| | LKGiW7355BHZZ | AX | | B | Lock(body) (From Mar. 2001 production.) |
| 28 | LKGiM7356BHZZ | AK | | B | Printer cover lock key |
| 29 | CPWBN2885BH02 | BS | N | E | CKDC PWB unit [include No.62] |
| 30 | UBATZ6661BHZZ | BA | | B | Battery (Ni-MH) |
| 31 | QCNW-7880BHZZ | AF | | C | Battery cable |
| 32 | XHBSD30P04000 | AA | | C | Screw (3×4) |
| 33 | XUBSD40P10000 | AA | | C | Screw (4×10) |
| 34 | LKGiM7110BHZZ | AE | | B | MA key (MA) |
| | LKGiM7111BHZZ | AE | | B | OP key (OP) |
| | LKGiM7129BHZZ | AE | | B | SM key (SM) |
| 35 | LKGiW0001BHZA | AS | | B | Mode sw(body) |
| 36 | QCNW-3117BHZZ | AG | N | C | Mode sw cable |
| 37 | XUPSD23P08000 | AA | | C | Screw (2.3×8) |
| 38 | LANGT7582BHZZ | AL | | C | Mode SW angle |
| 39 | GCŌVB2517BHZZ | BC | N | D | Flat keycover A |
| 40 | PSHEK2926BHZA | AQ | N | C | Normal key sheet |
| 41 | PSHEK2927BHZA | AG | N | C | Character key sheet |
| 44 | LFRM-2363BHZA | AX | N | D | Key frame |
| 45 | PGUMM2442BHZZ | BA | N | C | Key rubber |
| 46 | PSHEP2923BHZZ | BB | N | C | Key sheet unit |
| 47 | LPLTM2363BHZZ | AU | N | C | Base plate |
| 48 | XUBSD23P06000 | AA | N | C | Screw (2.3×6) [for FLAT KEY] |
| 51 | PSHEP2934BHZZ | AU | N | C | Water sheet |
| 52 | PSHEP2928BHZZ | AF | N | C | Printer cover sheet |
| 53 | PCUSS2420BHZZ | AF | N | C | LCD cushion |
| 54 | PCUSS2422BHZZ | AC | N | C | LCD cushion (S) |
| 55 | PSHEP2937BHZZ | AG | N | C | LCD rear sheet |
| 56 | PCUSS2421BHZZ | AC | N | C | Mode sw cushion |
| 57 | QCNW-3137BHZZ | AE | N | C | Earth wire |
| 58 | PSHEP2938BHZZ | AE | N | C | Water sheet (S) (Until Feb. 2001 production.) |
| 59 | RCŌRF6700BHZZ | AS | | C | Core (BNF-14) |
| 60 | XJPSD30P08000 | AA | | C | Screw (3×8) |
| 62 | QCNW-3114BHZZ | AX | N | C | CKDC CN.cable (30Pin) [CN1] |
| 501 | Ki-ŌK2012BHZA | BK | N | E | Keyboard (FLAT) [include No.44~48] |
| 502 | DUNT-1817BHZA | BE | N | E | Lock key unit (Printer) (Until Feb. 2001 production.)(include No.26~27) [TQ,TS,KB] |
| | DUNT-1817BHZZ | AY | | E | Lock key unit (Printer) (From Mar. 2001 production.)(include No.26~27) |

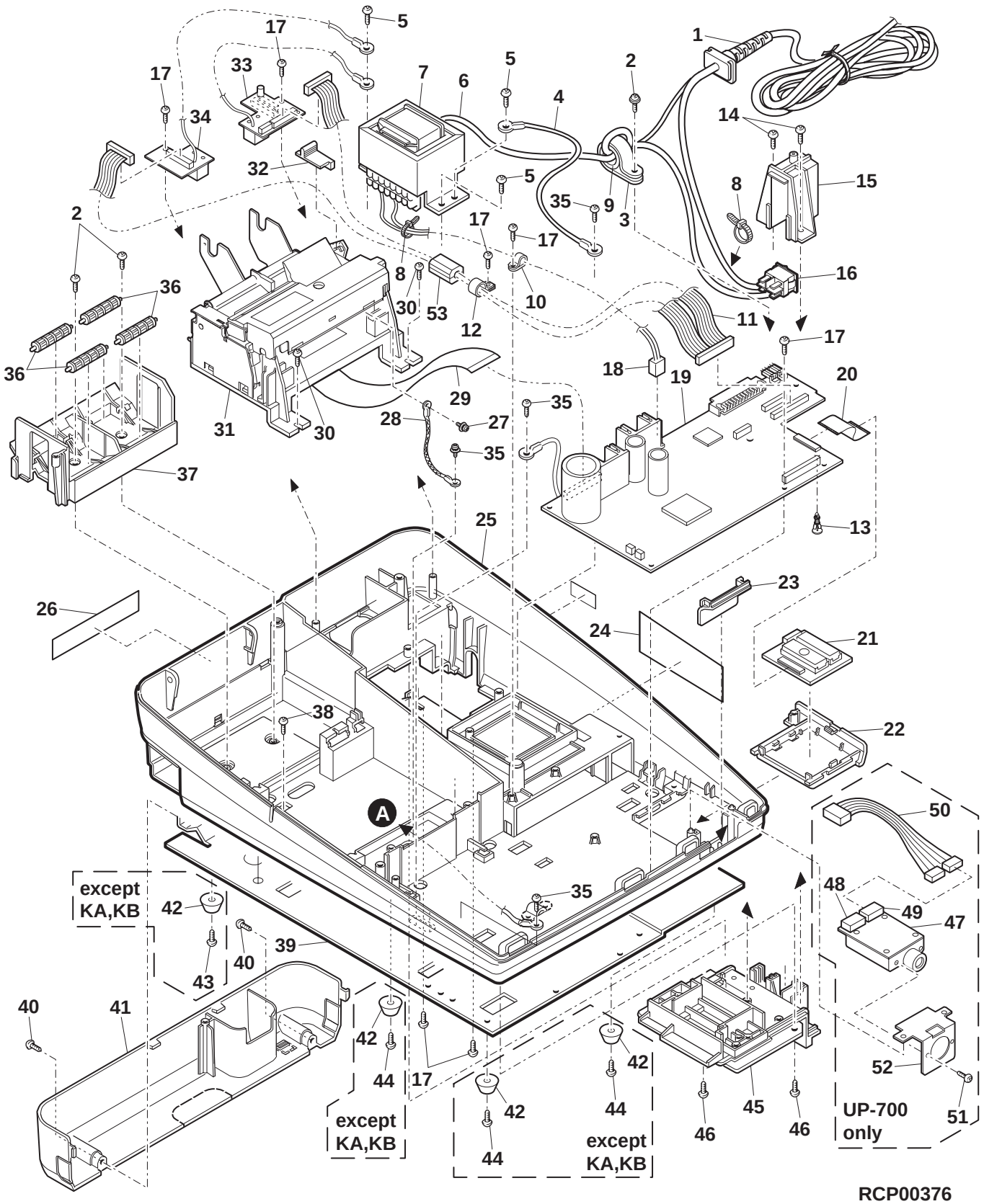
## 2 Top cabinet etc.(UP-700)



## 3 Bottom cabinet etc.

| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION |
|---|---|---|---|---|---|
| ⚠ 1 | QACCE3120BHZZ | AV | | B | AC cord [TQ,TS] |
| ⚠ 1 | QACCL1018BHZZ | AU | | B | AC cord [KA] |
| ⚠ 1 | QCNW-1035CCZZ | AL | | B | AC cord [KB] |
| ⚠ 1 | QPLGA0006QCZZ | AQ | | B | Plug (3A 250V) [KB] |
| 2 | LX-BZ1085CCZZ | AA | | C | Screw (3×8) |
| 3 | LBNDJ6636BHZZ | AD | | C | Battery band (CORE) |
| 4 | QCNW-7768BHZZ | AE | | C | Earth wire |
| 5 | XUBSD40P08000 | AA | | C | Screw (4×8) |
| 6 | QCNW-7767BHZZ | AE | | C | Lead wire (for sw) |
| ⚠ 7 | RTRNP2423BHZZ | BD | N | B | Power transformer (220V) [TQ,TS] |
| ⚠ 7 | RTRNP2424BHZZ | BD | N | B | Power transformer (240V) [KA,KB] |
| 8 | LBNDJ2003SCZZ | AA | | C | Cable band |
| 9 | RCŌRF6696BHZZ | AL | | C | Core (TC28A152B) |
| 10 | LHLDW0006SCZZ | AB | | C | Cable holder (3N) |
| 11 | QCNW-3115BHZZ | BC | N | C | Relay cable |
| 12 | LHLDW0007SCZZ | AA | | C | Wire holder (HP-7N) |
| 13 | LHLDW2386BHZZ | AD | N | C | Spacer holder |
| 14 | XJBSD30P10000 | AA | | C | Screw (3×10) |
| 15 | LHLDQ6839BHZA | AL | N | C | Switch holder |
| 16 | QSW-C9212BHZZ | AL | N | B | AC-SW |
| 17 | XEBSD30P08000 | AA | | C | Screw (3×8) |
| 18 | QCNW-7752BHZZ | AH | | C | PS cable |
| 19 | CPWBX2884BH01 | CT | N | E | Main PWB unit |
| 20 | QCNW-3113BHZZ | AQ | N | C | Flat cable (45Pin)(0.5mmPitch) |
| 21 | CPWBX2886BH01 | BS | N | E | IPL_ROM PWB unit |
| 22 | GCŌVA7105BHSA | AL | N | D | ROM/RAM case |
| 23 | GCŌVA7107BHSC | AH | N | D | Clerk cover A [UP-600] |
| 23 | GCŌVA7107BHSA | AH | N | D | Clerk cover B [UP-700] |
| 24 | TCAUS6677BHZZ | AD | | D | Caution label |
| 25 | GCABA7216BHZD | BH | N | D | Bottom cabinet |
| 26 | PSHEP2933BHZZ | AF | N | C | Connector sheet |
| 27 | XBPSD30P06K00 | AA | | C | Screw (M3×6K) |
| 28 | QCNW-7122RCZZ | AD | | C | Earth wire |
| 29 | QCNW-7898BHZZ | AP | | C | Flat cable(printer cable) (40P) |
| 30 | XJPSD30P12X00 | AB | | C | Screw (3×12X) |
| 31 | Ki-ŌB2010BHZZ | CF | N | E | Printer unit (PR-58HA) |
| 32 | MLEVP6715BHZZ | AF | | C | Stopper |
| 33 | CPWBN2882BH01 | BH | N | E | MCR_POLE PWB unit |
| 34 | CPWBN2881BH01 | BK | N | E | RS232C PWB unit |
| 35 | XHBSD30P04000 | AA | | C | Screw (3×4) |
| 36 | NRŌLP6656BHZZ | AF | | C | Roller |
| 37 | LPLTP2362BHZZ | AR | N | C | Paper plate |
| 38 | XHPSD40P08KS0 | AA | | C | Screw (M4×8) |
| 39 | LCHSM6704BHZA | AZ | | C | Main chassis |
| 40 | XBBSC30P20000 | AA | | C | Screw (3×20) |
| 41 | GCŌVA7104BHZA | AX | N | D | Rear cover |
| 42 | PGUMM6696BHZZ | AE | | C | Gum leg [TQ,TS] |
| 43 | XJBSD30P14000 | AA | | C | Screw (3×14) |
| 44 | LX-HZ0056BHZZ | AA | | C | Screw |
| 45 | GCŌVH7106BHZB | AU | N | D | Trans cover |
| 46 | XUPSD40P12000 | AA | | C | Screw (M4×12)(M) |
| 47 | LKGiW7375BHZA | BH | | B | Clerk switch(body) [UP-700] |
| 48 | QCNCW2892BHZZ | AD | N | C | Clerk connector (3Pin)(5268-03A) [UP-700] |
| 49 | QCNCW2423BH0E | AE | | C | Connector (Clerk)(5P)(5268-05A) [UP-700] |
| 50 | QCNW-3120BHZZ | AL | N | C | Clerk key cable [UP-700] |
| 51 | XJSSD26P08000 | AA | | C | Screw (2.6×8) [UP-700] |
| 52 | LANGT7581BHZZ | AM | | C | Clerk angle [UP-700] |
| 53 | RCŌRF6699BHZZ | AU | | C | Core (BNF28) |

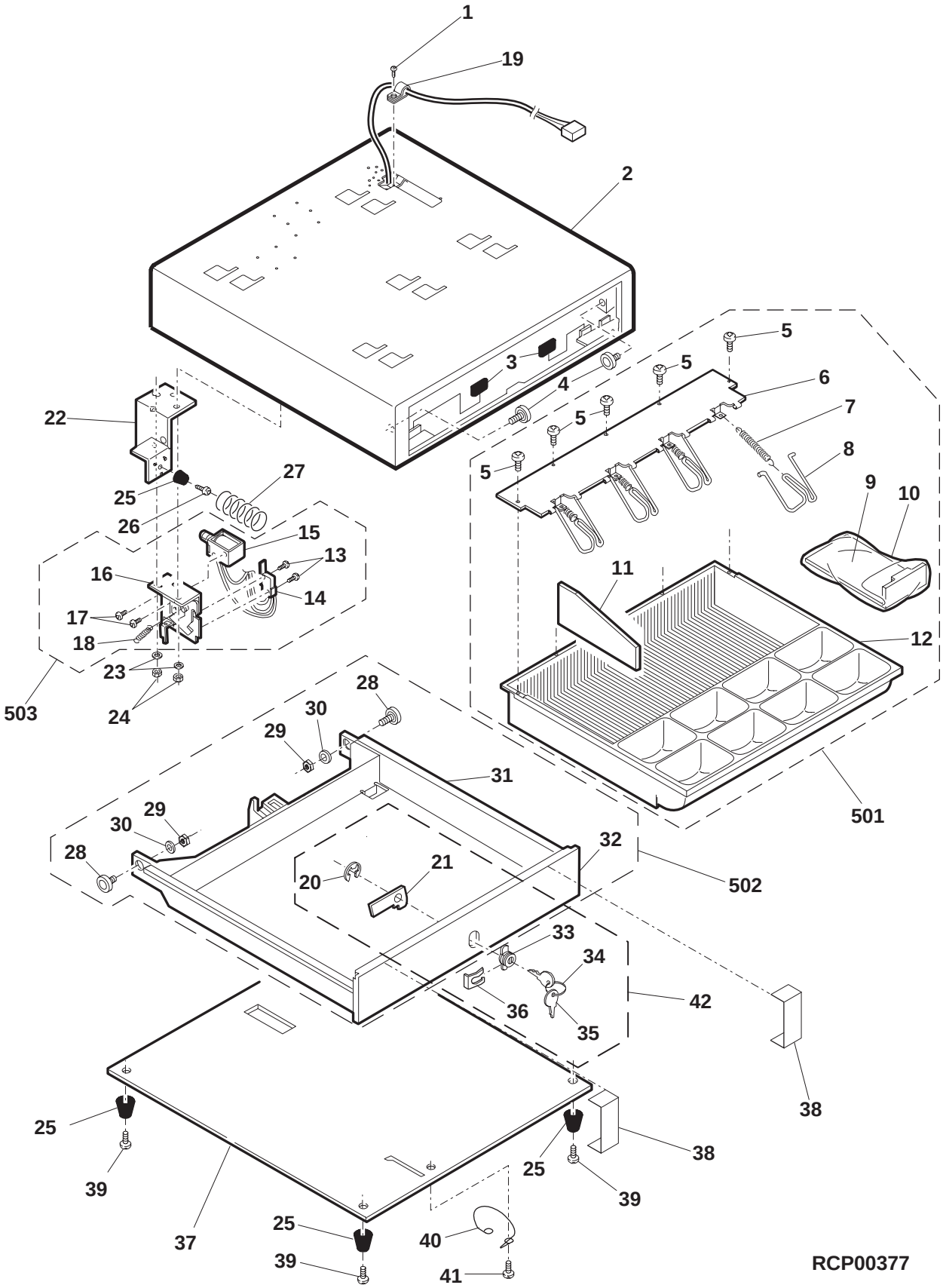
3 Bottom cabinet etc.



## 4 Drawer box unit(SK423 type)[for KA,KB]

| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION |
|---|---|---|---|---|---|
| 1 | XHBSD30P06000 | AA | | C | Screw (3×6) |
| 2 | CCABM2563BHZZ | BK | N | D | Cabinet frame unit |
| 3 | PGUMM6695BHZZ | AE | | C | Stopper gum |
| 4 | NRŌLP6650BHZZ | AP | | C | Roller |
| 5 | XUBSD30P08000 | AA | | C | Screw (3×8) |
| 6 | LBRC-6663BHZZ | AQ | | C | Bill bracket |
| 7 | MSPRT6714BHZZ | AE | | C | Bill spring |
| 8 | MLEVF6695BHZZ | AK | | C | Bill lever |
| 9 | PSKR-6629BHZZ | AL | | C | Bill separator |
| 10 | SSAKA5004CCZZ | AA | | D | Vinyl bag (100×300mm) |
| 11 | PSKR-6628BHZZ | AG | | C | Separator |
| 12 | GCAS-6678BHZZ | BC | | D | Money case (4B/8C) |
| 13 | LX-BZ6776BHZZ | AA | | C | Screw |
| 14 | QSW-M6872BHZZ | AR | | B | Micro switch |
| 15 | CPLU-6641BH06 | AY | N | B | Solenoid+ Drawer cable |
| 16 | CFRM-6683BH01 | AW | | D | Lock frame unit |
| 17 | LX-BZ6775BHZZ | AA | | C | Screw (3×5) |
| 18 | MSPRT6713BHZZ | AD | | C | Open lever spring |
| 19 | LHLDW0024BHZZ | AG | | C | Clamp (3N) |
| 20 | XRESJ50-06000 | AA | | C | E type ring (5mm) |
| 21 | MCAMM6633BHZA | AE | | C | Lock cam |
| 22 | LFRM-6682BHZZ | AN | | D | Bell frame |
| 23 | XWSSD40-10000 | AA | | C | Washer |
| 24 | XNESD40-32000 | AA | | C | Nut (M4) |
| 25 | PGUMM6696BHZZ | AE | | C | Gum leg |
| 26 | XHBSD30P12000 | AA | | C | Screw (3×12) |
| 27 | MSPRC6712BHZZ | AF | | C | Push out spring |
| 28 | NRŌLP6650BHZZ | AP | | C | Roller |
| 29 | XNESD60-50000 | AA | | C | Nut (M6) |
| 30 | XWSSD60-15000 | AA | | C | Washer (6mm) |
| 31 | GDRW-6678BHZZ | BF | | D | Drawer case frame unit |
| 32 | GCŌVA7146BHZZ | AV | | D | Front cover |
| 33 | LKGiW7330BHZZ | AY | | B | Lock key (body) |
| 34 | PRNGT6637BHZZ | AA | | C | Key ring |
| 35 | LKGiM7331BHZZ | AE | | B | Lock key (1pc) |
| 36 | MSPRK6718BHZZ | AF | | C | Lock key spring |
| 37 | LPLTM6674BHZC | AY | | C | Bottom plate |
| 38 | SPAKA8255BHZZ | AC | | D | Paper pad |
| 39 | XHBSD40P15000 | AA | | C | Screw (4×15) |
| 40 | MSPRB6711BHZZ | AD | | C | Earth spring |
| 41 | XHPSC30P08000 | AA | | C | Screw (3×8) |
| 42 | DUNT-1306BHZA | AX | | E | Lock key unit |
| 501 | CCAS-6678BH01 | BF | | E | Money case unit |
| 502 | GDRW-6684BHZZ | BH | | E | Drawer case unit |
| 503 | CLŌK-6683BH08 | BK | N | E | Lock unit |
| 504 | CFRM-6682BH02 | AQ | | E | Bell frame unit |
| | (Unit) | | | | |
| 901 | GBŌXD7155BHZZ | BW | N | E | Drawer box unit [KA,KB] |

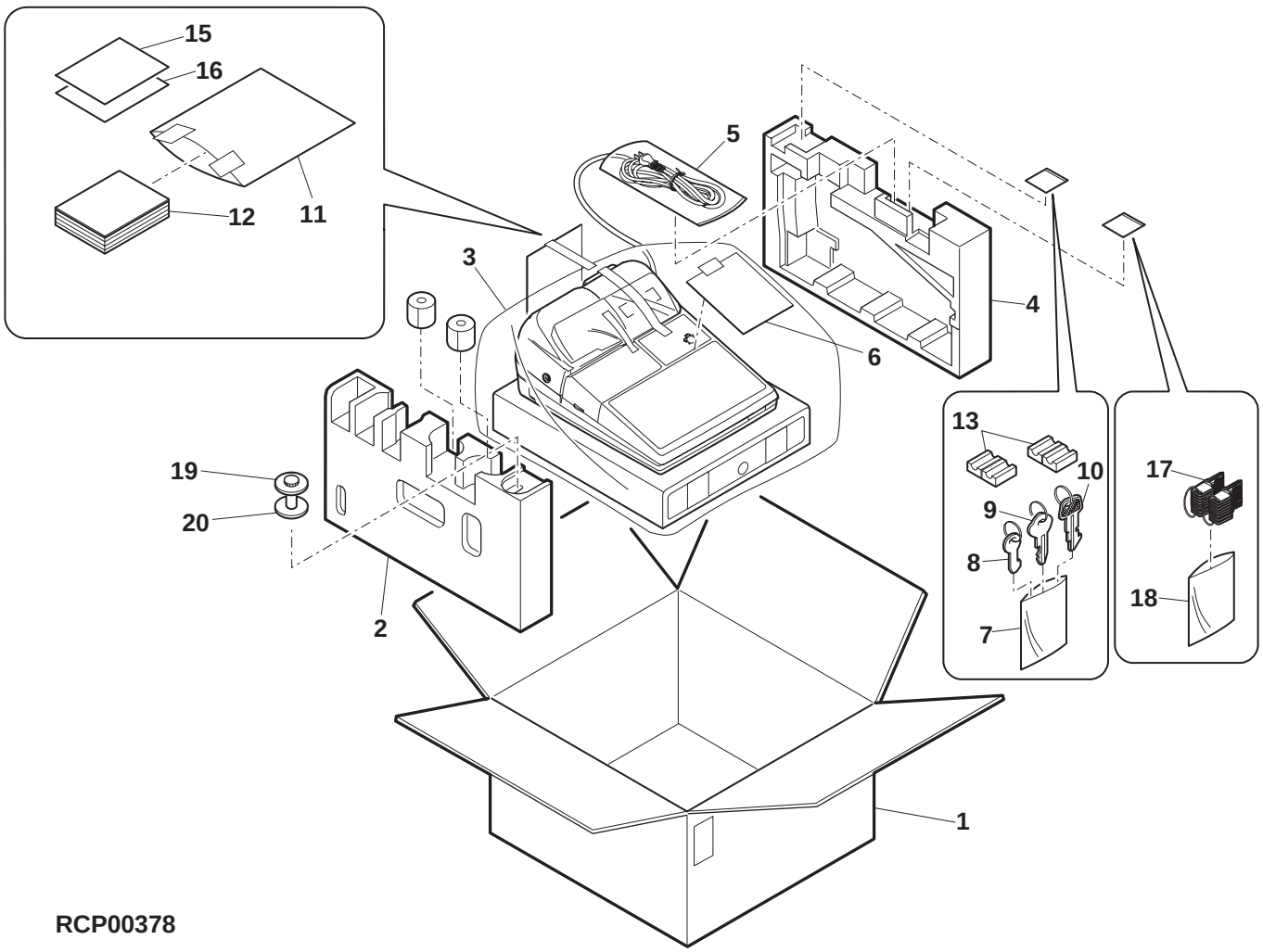
## 4 Drawer box unit(SK423 type)[for KA,KB]



## 5 Packing material & Accessories

| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION | |
|---|---|---|---|---|---|---|
| 1 | SPAKC31156BHZZ | AY | N | D | Packing case | [UP-600:TQ,TS] |
| | SPAKC31156BHSA | AY | N | D | Packing case | [UP-700:TQ,TS] |
| | SPAKC31157BHZZ | BB | N | D | Packing case | [UP-600:KA,KB] |
| | SPAKC31157BHSA | BB | N | D | Packing case | [UP-700:KA,KB] |
| 2 | SPAKA31154BHZL | AQ | N | D | Packing add L | [TQ,TS] |
| | SPAKA31159BHZL | AR | N | D | Packing add L | [KA,KB] |
| 3 | PSHEP6681BHZZ | AF | | D | Packing sheet | |
| 4 | SPAKA31154BHZR | AQ | N | D | Packing add R | [TQ,TS] |
| | SPAKA31158BHZR | AR | N | D | Packing add R | [KA,KB] |
| 5 | SSAKH4231CCZZ | AA | | D | Vinyl bag (140×500mm) | |
| 6 | TCADH6788BHZA | AC | | D | Caution card (Black) | |
| 7 | SSAKH3012CCZZ | AA | | D | Vinyl bag (80×120mm) | |
| 8 | LKGiM7356BHZZ | AK | | B | Printer cover lock key | |
| 9 | LKGiM7331BHZZ | AE | | B | Lock key (1pc) | |
| 10 | LKGiM7110BHZZ | AE | | B | MA key (MA) | |
| | LKGiM7111BHZZ | AE | | B | OP key (OP) | |
| | LKGiM7129BHZZ | AE | | B | SM key (SM) | |
| 11 | SSAKH3015CCZZ | AA | | D | Vinyl bag (200×300mm) | [KA,KB] |
| | SSAKH0013HCZZ | AA | | D | Vinyl sack | [TQ,TS] |
| 12 | TiNSE2445BHZZ | BA | N | D | Instruction book (ENGLISH) | [UP-600] |
| | TiNSG2446BHZZ | BA | N | D | Instruction book (GERMAN) | [UP-600:TQ,TS] |
| | TiNSF2447BHZZ | BA | N | D | Instruction book (FRENCH) | [UP-600:TQ,TS] |
| | TiNSS2448BHZZ | BA | N | D | Instruction book (SPANISH) | [UP-600:TQ,TS] |
| | TiNSE2449BHZZ | BA | N | D | Instruction book (ENGLISH) | [UP-700] |
| | TiNSG2450BHZZ | BA | N | D | Instruction book (GERMAN) | [UP-700:TQ,TS] |
| | TiNSF2451BHZZ | BA | N | D | Instruction book (FRENCH) | [UP-700:TQ,TS] |
| | TiNSS2452BHZZ | BA | N | D | Instruction book (SPANISH) | [UP-700:TQ,TS] |
| 13 | RCÖRF6700BHZZ | AS | | C | Core (BNF-14) | |
| 15 | TGANE1001BHZC | AG | | D | Warranty card | [KA] |
| 16 | TCADZ2001BHZA | AM | | D | Install card | [KA] |
| 17 | CKGiM2421BH01 | AR | N | B | Clerk key (1) | [UP-700] |
| | CKGiM2421BH02 | AR | N | B | Clerk key (2) | [UP-700] |
| | CKGiM2421BH03 | AR | N | B | Clerk key (3) | [UP-700] |
| | CKGiM2421BH04 | AR | N | B | Clerk key (4) | [UP-700] |
| | CKGiM2421BH05 | AR | N | B | Clerk key (5) | [UP-700] |
| | CKGiM2421BH06 | AR | N | B | Clerk key (6) | [UP-700] |
| | CKGiM2421BH07 | AR | N | B | Clerk key (7) | [UP-700] |
| | CKGiM2421BH08 | AR | N | B | Clerk key (8) | [UP-700] |
| | CKGiM2421BH09 | AR | N | B | Clerk key (9) | [UP-700] |
| | CKGiM2421BH10 | AR | N | B | Clerk key (10) | [UP-700] |
| | CKGiM2421BH11 | AR | N | B | Clerk key (11) | [UP-700] |
| | CKGiM2421BH12 | AE | N | B | Clerk key (12) | [UP-700] |
| | PRNGT6641BHZZ | AE | | C | Key ring | [UP-700] |
| 18 | SSAKA5004CCZZ | AA | | D | Vinyl bag | [UP-700] |
| 19 | NGERH2004BHZZ | AM | | C | Spool | |
| 20 | PGiDH2394BHZZ | AK | | C | G/Wheel | |

## 5 Packing material & Accessories




RCP00378

## 6 Main PWB unit

| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION | |
|---|---|---|---|---|---|---|
| 1 | LHLDW2386BHZZ | AD | N | C | Spacer (H=10mm) | |
| 2 | LX-BZ6644BHZZ | AA | | C | Screw (M3.5×8S) | [IC25,32,Q6] |
| 3 | PRDAF2374BHZA | AM | | C | Heat sink | [IC25,32] |
| 4 | PRDAF6661BHZC | AK | N | C | Heat sink (KTD998) | [Q6] |
| 5 | QCNCM1101BHZZ | AC | | C | Connector (5273-2)(2P) | [CN12] |
| 6 | QCNCM2896BHZZ | AQ | N | C | Relay connector (40P)(C05-40-A-G-1)(RS232C_MCR,POLE) | [CN6] |
| 7 | QCNCM5278NCZZ | AC | | C | Connector (3pin)(5046-03A) | [CN4,5] |
| 8 | QCNCM7073RC6H | AM | | C | Connector (68pin) | [CN8] |
| 9 | QCNCM7207BH4J | AQ | | C | Connector (Printer)(40P)(6229ZiF DIP) | [CN9] |
| 10 | QCNCW2879BHZZ | AT | N | C | ROM FPC Connector (45P)(XF2H-4515-1) | [CN16] |
| 11 | QCNCM2901BHZZ | AG | N | C | CKDC_LCD Connector (30Pin)(C03-30-A-G-1) | [CN17] |
| 12 | QCNCW2882BHZZ | AU | N | C | TCP_IP Connector (40Pin)(53553-0409) | [CN304] |
| 13 | QCNW-3135BHZZ | AD | N | C | GND wire (100mm) | [GND6] |
| ⚠ 14 | QFS-C2521TAZZ | AE | | A | Fuse (T2.5AL/250V) | [F1] |
| 15 | QFSHD2109AFZZ | AC | | C | Fuse holder (HD2109AF) | [F1] |
| ⚠ 16 | QFS-K2006BHZZ | AF | N | A | Fuse (LT-5,T2.5A/250V) | [F2,4] |
| ⚠ 17 | QFS-K2007BHZZ | AF | N | A | Fuse (LT-5,T500mA/250V) | [F5] |
| ⚠ 18 | QFS-K2008BHZZ | AF | N | A | Fuse (LT-5,T2.0A/250V) | [F3] |
| 19 | RC-EZ106ARC1A | AD | | C | Capacitor (10WV 10μF) | [C45] |
| 20 | RC-EZ6881RC1J | AZ | | C | Capacitor (63WV 6800μF) | [C176] |
| 21 | RCiLC2424BHZZ | AF | N | C | Coil (100μH) | [L2] |
| 22 | RCiLC2425BHZZ | AF | N | C | Coil (220μH) | [L3] |
| 23 | RCiLC6653BHZZ | AS | | C | Choke coil (180μH) | [L1] |
| 24 | RCiLZ1003BHZZ | AF | | C | Dip coil (BFW7550R2) | [FB1] |
| 25 | RCŌRF2345BHZZ | AD | N | C | Chip coil (CIM31J601NE) | [FB2,3,4,5,6,7,38,39,40,41,42,43,44,45,46,47] |
| | RCŌRF2345BHZZ | AD | N | C | Chip coil (CIM31J601NE) | [FB48,49,50,51,52,53,60,61,62,63,64,65,66,67] |
| | RCŌRF2345BHZZ | AD | N | C | Chip coil (CIM31J601NE) | [FB54,55,56,57,58,59] |
| | RCŌRF2345BHZZ | AD | N | C | Chip coil (CIM31J601NE) | [FB68,69,70,71] |
| 26 | RCŌRF2337BHZZ | AN | | C | Ferrite core (BFR601009C8NG) | [FB8,9,10,11] |
| 27 | RCŌRF7002BHZZ | AE | | C | Chip core (EFCB322513TS) | [FB12,13,14,15,16,17,18,19,20,21,23,32,33,36,37] |
| | RCŌRF7002BHZZ | AE | | C | Chip core (EFCB322513TS) | [FB22,24,25,26,27,28,29,30,31,34,35] |
| 28 | RCRMZ7004RCZZ | AE | | B | Chip resonater (CSTCC 7.37MG) | [X3] |
| 29 | RCRSZ2399RCZZ | AL | | B | Crystal (19.6608MHz) | [X2] |
| 30 | RMPTQ2103QCJJ | AA | | B | Block resistor (10KΩ×2) | [BR7,41] |
| 31 | RMPTQ4101QCJJ | AB | | B | Block resistor (100Ω×4) | [BR33,34,35,36] |
| 32 | RMPTQ4102QCJJ | AB | | B | Block resistor (1KΩ×4) | [BR15,16] |
| 33 | RMPTQ4103QCJJ | AB | | B | Block resistor (10KΩ×4 1/32W ±5%) | [BR1,2,3,4,5,6,9,10,11,12,13,14,17,18,21,22] |
| | RMPTQ4103QCJJ | AB | | B | Block resistor (10KΩ×4 1/32W ±5%) | [BR23,24,25,26,27,28,29,30,31,32,37,38,39] |
| 34 | RMPTQ4472QCJJ | AC | | B | Block resistor (4.7KΩ×4) | [BR19,20,40] |
| 35 | VCCCCY1HH101J | AA | | C | Capacitor (50WV 100pF)(1608Type) | [C1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,25,26] |
| | VCCCCY1HH101J | AA | | C | Capacitor (50WV 100pF)(1608Type) | [C17,18,19,20,21,22,23,24,37,38,39,40,41,42,170] |
| | VCCCCY1HH101J | AA | | C | Capacitor (50WV 100pF)(1608Type) | [C27,28,29,30,31,32,33,34,35,36,46,48,49,64] |
| | VCCCCY1HH101J | AA | | C | Capacitor (50WV 100pF)(1608Type) | [C108,213,214,215,216,217,218,219,220,221,222] |
| | VCCCCY1HH101J | AA | | C | Capacitor (50WV 100pF)(1608Type) | [C223,224,225,226,227,228] |
| 36 | VCCCCY1HH331J | AB | | C | Capacitor (50WV 330pF) | [C51,56,58,126,191,241] |
| | VCCCCY1HH331J | AB | | C | Capacitor (50WV 330pF) | [C100.101,102,103,104,105,106,107,127,205,206] |
| | VCCCCY1HH331J | AB | | C | Capacitor (50WV 330pF) | [C207,208,209,210,211,212,229,230,231,232] |
| 37 | VCCCCY1HH470J | AA | | C | Capacitor (50WV 47PF) | [C114,115,116,117,118,119,120,121,122,138,139] |
| | VCCCCY1HH470J | AA | | C | Capacitor (50WV 47PF) | [C132,133,146,147,148,149,154,155] |
| | VCCCCY1HH470J | AA | | C | Capacitor (50WV 47PF) | [C140,141,143,144,145,150,151,152,153] |
| 38 | VCCCCY1HH471J | AA | | C | Capacitor (50WV 470pF) | [C57,167] |
| 39 | VCCCTV1HH8R0C | AB | N | C | Chip capacitor (50WV 8pF 2012) | [C54,55] |
| 40 | VCEAFX1AW226M | AK | N | C | Apro capacitor (22μF/10V) | [C194] |
| 41 | VCEAGD1CW108M | AE | | C | Capacitor (16WV 1000μF) | [C181,184] |
| 42 | VCEAGU1VW228M | AG | | C | Capacitor (35WV 2200μF) | [C131,178] |
| 43 | VCEAPF1HW105M | AE | N | C | Chip al.capacitor (1μF/50V) | [C189] |
| 44 | VCEAPF1HW106M | AE | N | C | Chip al.capacitor (10μF/50V) | [C110,177] |
| 45 | VCEAPF1VW106M | AE | N | C | Chip al.capacitor (10μF/35V) | [C135,179,182,195,197] |
| 46 | VCEAPS1CC106M | AC | | C | Capacitor (16WV 10μF) | [C63,94,125,235,237,52] |
| 47 | VCEAPS1CC226M | AC | | C | Capacitor (22μF/16V) | [C194] |
| 48 | VCKYCY1HB102K | AA | | C | Capacitor (50WV 1000pF) | [C60,61,130,171,172,173,185,190] |
| | VCKYCY1HB102K | AA | | C | Capacitor (50WV 1000pF) | [C90] |
| 49 | VCKYCY1HF104Z | AA | | C | Capacitor (50WV 0.10μF) | [C43,62,95,99,112,113,123,128,158,161,168,236] |
| | VCKYCY1HF104Z | AA | | C | Capacitor (50WV 0.10μF) | [C44,86,87,88,89,109,111,129,136,137,156,163] |
| | VCKYCY1HF104Z | AA | | C | Capacitor (50WV 0.10μF) | [C53] |
| | VCKYCY1HF104Z | AA | | C | Capacitor (50WV 0.10μF) | [C193,240] |
| 50 | VCKYTV1CB474K | AC | | C | Capacitor (16WV 0.47μF) | [C157,159,160,162,164,165,234] |
| 51 | VCKYTV1HB103K | AB | | C | Capacitor (50WV 0.010μF) | [C180,183] |
| 52 | VCQYNA1HM333K | AA | | C | Capacitor (50WV 0.033μF) | [C175] |
| 53 | VHD1SR159//-1 | AF | | B | Chip diode (1SR159-200) | [D9] |
| 54 | VHD1SS353//-1 | AB | | B | Diode (1SS353) | [D1,2,3,5,11,12] |
| | VHD1SS353//-1 | AB | | B | Diode (1SS353) | [D4] |
| 55 | VHDCP301///-1 | AL | | B | Diode (CP301) | [BD1] |
| 56 | VHDRB060L//-1 | AK | | B | Diode (RB060L40) | [D7,8] |
| 57 | VHDRB160L60-1 | AF | N | B | Diode (RB160L-60) | [D6] |

## 6 Main PWB unit

| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION | |
|---|---|---|---|---|---|---|
| 58 | VHEPTZ30B++-1 | AG | | B | Zener diode (PTZ30B) | [ZD4] |
| 59 | VHEPTZ6.2A/-1 | AH | | B | Zener diode (PTZ6.2A) | [ZD1A] |
| 60 | VHEPTZ6R2B/-1 | AG | N | B | Zener diode (PTZ6.2B) | [ZD2A] |
| 61 | VHERD4.3MB1-1 | AC | | B | Zener diode (RD4.3MB1) | [ZD3] |
| 62 | VHi28F016SU70 | BR | | B | Flash memory (28F016SU70) | [IC3] |
| 63 | VHi65945GDP13 | BA | N | B | G/A MPCA9 (D65945GDP13) | [IC9] |
| 64 | VHiSNLV00AS-1 | AK | N | B | IC (74LV00A) | [IC24] |
| 65 | VHi74LV08/DR/ | AK | | B | IC (74LV08) | [IC7] |
| 66 | VHi74LV14ADR/ | AM | | B | IC (74LV14A) | [IC21] |
| 67 | VHiBA033F++-1 | AP | N | B | IC (BA033F) | [IC36] |
| 68 | VHiBA10393F-1 | AC | | B | IC (BA10393F) | [IC12,15,17,27] |
| 69 | VHiG76C256F70 | BC | | B | IC (G76D256F70) | [IC10] |
| 70 | VHi6284LLT7-1 | BN | N | B | 4M S-RAM (HY628400ALLT2-70) | [IC23] |
| 71 | VHiH6415108 10 | BA | | B | CPU (H641510810) | [IC1] |
| 72 | VHiKiA431F/-1 | AK | | B | IC (KIA431F) | [IC16] |
| 73 | VHiLM2574-ADJ | AU | | B | IC (LM2574HVN-ADJ) | [IC31] |
| 74 | VHiM66271FP-1 | BA | N | B | IC LCDC (M66271FP) | [IC22] |
| 75 | VHiMAX3241/-1 | AT | | B | IC (IMAX3241) | [IC19,20] |
| 76 | VHiPQ1CG2032F | AL | | B | IC (PQ1CG2032FZ) | [IC25,32] |
| 77 | VHiSMA7036M-1 | BA | N | B | IC (SMA7036M) | [IC13,14] |
| 78 | VHiSN74HC00DR | AG | | B | IC (74HC00) | [IC11] |
| 79 | VHiSN74HC02DR | AH | | B | IC (74HC02) | [IC37] |
| 80 | VHiTA8428K/-1 | AN | | B | IC (TA8428K) | [IC18] |
| 81 | VHiTD62308F-1 | AH | | B | IC (TD62308F) | [IC8] |
| 82 | VHiW42C3103G/ | AU | | B | IC (W42C31-03G) | [IC2] |
| 83 | VRS-CY1JD000J | AA | | C | Resistor (1/16W 0Ω ±5%)(Jumper/1608Type) | [R86,91,93,151,71] |
| | VRS-CY1JD000J | AA | | C | Resistor (1/16W 0Ω ±5%)(Jumper/1608Type) | [R242] |
| 84 | VRS-CY1JD100J | AA | | C | Resistor (1/16W 10Ω ±5%) | [R211] |
| 85 | VRS-CY1JD102F | AA | | C | Resistor (1/16W 1KΩ ±1%) | [R215,217,238] |
| | VRS-CY1JD102F | AA | | C | Resistor (1/16W 1KΩ ±1%) | [R232] |
| 86 | VRS-CY1JD102J | AA | | C | Resistor (1/16W 1.0KΩ ±5%) | [R94,266,267] |
| | VRS-CY1JD102J | AA | | C | Resistor (1/16W 1.0KΩ ±5%) | [R150,158,170,171,172,176,177,207,261,262] |
| 87 | VRS-CY1JD103J | AA | | C | Resistor (1/16W 10KΩ ±5%) | [R58,82,84,87,89,113,181,186,208,265] |
| | VRS-CY1JD103J | AA | | C | Resistor (1/16W 10KΩ ±5%) | [R119,182,184,263,264] |
| 88 | VRS-CY1JD104J | AA | | C | Resistor (1/16W 100KΩ ±5%) | [R155,164,174] |
| | VRS-CY1JD104J | AA | | C | Resistor (1/16W 100KΩ ±5%) | [R156] |
| 89 | VRSCY1JR1151F | AA | N | C | Resistor (1/16W 1.15KΩ ±1%) | [R137] |
| 90 | VRS-CY1JD122F | AB | | C | Resistor (1/16W 1.2KΩ ±1%) | [R213] |
| 91 | VRSCY1JR1330F | AA | N | C | Resistor (1/16W 133Ω ±1%) | [R138] |
| 92 | VRS-CY1JD163F | AA | | C | Resistor (1/16W 16KΩ ±1%) | [R78,80] |
| 93 | VRS-CY1JD183F | AA | | C | Resistor (1/16W 18KΩ ±1%) | [R135] |
| 94 | VRS-CY1JD183J | AA | | C | Resistor (1/16W 18KΩ ±5%) | [R210] |
| 95 | VRS-CY1JD202F | AA | | C | Resistor (1/16W 2KΩ ±1%) | [R244] |
| 96 | VRS-CY1JD203J | AA | | C | Resistor (1/16W 20KΩ ±5%) | [R140] |
| 97 | VRS-CY1JD221J | AA | | C | Resistor (1/16W 220Ω ±5%) | [R260] |
| 98 | VRS-CY1JD222F | AA | | C | Resister (1/16W 2.2KΩ ±1%) | [R243] |
| 99 | VRS-CY1JD222J | AA | | C | Resistor (1/16W 2.2KΩ ±5%) | [R120,179] |
| | VRS-CY1JD222J | AA | | C | Resistor (1/16W 2.2KΩ ±5%) | [R180] |
| 100 | VRS-CY1JD223F | AA | | C | Resistor (1/16W 22KΩ ±1%) | [R212] |
| 101 | VRS-CY1JD241J | AA | | C | Resistor (1/16W 240KΩ ±5%) | [R154] |
| 102 | VRS-CY1JR301F | AA | N | C | Resistor (1/16W 300Ω ±1%) | [R241] |
| 103 | VRS-CY1JD302F | AA | | C | Resistor (1/16W 3KΩ ±1%) | [R214] |
| 104 | VRSCY1JD3091F | AA | | C | Resistor (1/16W 3.09KΩ ±1%) | [R231] |
| | VRSCY1JD3091F | AA | | C | Resistor (1/16W 3.09KΩ ±1%) | [R237] |
| 105 | VRS-CY1JD330J | AA | | C | Resistor (1/16W 33Ω ±5%) | [R70] |
| 106 | VRS-CY1JD333J | AA | | C | Resistor (1/16W 33KΩ ±5%) | [R163,173,185] |
| 107 | VRS-CY1JD362F | AA | | C | Resistor (1/16W 3.6KΩ ±1%) | [R79,81] |
| | VRS-CY1JD362F | AA | | C | Resistor (1/16W 3.6KΩ ±1%) | [R216] |
| 108 | VRS-CY1JD470J | AA | | C | Resistor (1/16W 47Ω ±5%) | [R64,66,67,68,69] |
| 109 | VRS-CY1JD472F | AA | | C | Resistor (1/16W 4.7KΩ ±1%) | [R224] |
| 110 | VRS-CY1JD472J | AA | | C | Resistor (1/16W 4.7KΩ ±5%) | [R107,152,206,227] |
| | VRS-CY1JD472J | AA | | C | Resistor (1/16W 4.7KΩ ±5%) | [R139,153,192] |
| 111 | VRS-CY1JD473J | AA | | C | Resistor (1/16W 47KΩ ±5%) | [R121] |
| 112 | VRS-CY1JD562J | AA | | C | Resistor (1/16W 5.6KΩ ±5%) | [R157,165,175] |
| | VRS-CY1JD562J | AA | | C | Resistor (1/16W 5.6KΩ ±5%) | [R183] |
| 113 | VRS-CY1JD563J | AA | | C | Resistor (1/16W 56KΩ ±5%) | [R226] |
| | VRS-CY1JD563J | AA | | C | Resistor (1/16W 56KΩ ±5%) | [R245] |
| 114 | VRS-CY1JD680F | AA | N | C | Resistor (1/16W 68Ω ±1%) | [R136] |
| 115 | VRS-CY1JD912F | AA | | C | Resistor (1/16W 9.1KΩ ±1%) | [R222,223,230,236] |
| 116 | VRS-TE2HF1R0F | AD | N | C | Resistor (1/2W 1Ω ±1%) | [R233,234,239,240] |
| 117 | VRS-TS2ED392J | AD | N | C | Resistor (1/4W 3.9KΩ ±5%) | [R225] |
| 118 | VRS-TS3AD8R2J | AD | N | C | Resistor (1W 8.2Ω ±5%) | [R187] |
| 119 | VS2SA1036KQRC | AB | | B | Transistor (2SA1036KQRC) | [Q1] |
| 120 | VS2SC2412K/-1 | AB | | B | Transistor (2SC2412K) | [Q2] |
| | VS2SC2412K/-1 | AB | | B | Transistor (2SC2412K) | [Q4] |
| 121 | VS2SK1826//-1 | AC | | B | FET (2SK1826) | [Q7,8] |
| 122 | VSKTD998//-1 | AS | | B | Transistor (2SD998) | [Q6] |
| 123 | VSMTD2955V+-1 | AQ | N | B | Transistor (MTD2955V) | [Q3,5] |
| 124 | XBPSD30P06000 | AA | | C | Screw (M3×6) | [IC25,32,Q6] |
| | (Unit) | | | | | |

## 6 Main PWB unit

| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION |
|---|---|---|---|---|---|
| 901 | CPWBX2884BH01 | CT | N | E | Main PWB unit |
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## 7 IPL PWB unit

| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION | |
|---|---|---|---|---|---|---|
| 1 | QCNCW2879BHZZ | AT | N | C | ROM FPC Connector (45P)(XF2H-4515-1) | [CN301] |
| 2 | QCNCW2885BHZZ | AQ | | C | Option RAM stack connector (35774-4050) | [CN303] |
| 3 | QSŌCZ2042SC32 | AE | | C | IC socket (32pin) | [IC302,303] |
| 4 | QSW-S1054YCKZ | AK | N | B | IPL slide switch (SSSS11101)(SSSS812-B-2B) | [SW301,302] |
| 5 | VCEAPS1CC106M | AC | | C | Capacitor (16WV 10µF) | [C308,309] |
| 6 | VCKYCY1HF104Z | AA | | C | Capacitor (50WV 0.10µF) | [C303,305] |
| | (Unit) | | | | | |
| 901 | CPWBX2886BH01 | BS | N | E | IPL_ROM PWB unit | |
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## 8 CKDC PWB unit

| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION | |
|---|---|---|---|---|---|---|
| 1 | QCNCW2888BHZZ | AN | | C | LCD I/F Connector (00 6208 515 210 000) | [CN2] |
| 2 | QCNCM7142BH1B | AD | | C | Connector (GIL-G12P-5ST2-E) | [CN4] |
| 3 | QCNCM7176BH0H | AD | | C | Connector (KEY)(5394-0810) | [CN8] |
| 4 | QCNCM7176BH1E | AE | | C | Connector (MLX 53014-1510) | [CN3A] |
| 5 | QCNCW6882BH1A | AG | | C | Connector (11P)(52011-1110)(ST TYPE) | [CN7] |
| 6 | QCNCW7081BHZZ | AB | | C | Connector (2P)(5267-02A)(Blue) | [CN10] |
| 7 | QCNCW7118BH0i | AG | | C | Connector (K/B)(9P)(5229-09CPB) | [CN6-1] |
| 8 | QCNCW7118BH1H | AM | | C | Connector (18pin)(5229-18CPB) | [CN5] |
| 9 | QCNW-3114BHZZ | AX | N | C | CKDC CN.cable (30Pin) | [CN1] |
| 10 | QCNW-3136BHZZ | AD | N | C | GND wire (140mm) | [GND1] |
| 11 | RALMB6646BHZZ | AQ | | B | Buzzer (RALMB6646BHZA) | [BZ1] |
| 12 | RCŌRF2345BHZZ | AD | N | C | Chip coil (CIM31J601NE) | [FB9,10,11,12,13,14,15,16,17] |
| 13 | RCŌRF1008ACZZ | AB | | C | Chip bead (BLM21A05) | [FB1,2,3,4,5,6,7,8] |
| 14 | RCRMZ2002RCZZ | AD | N | B | Resonator (4.19MHz) | [X2] |
| 15 | RCRSP6676RCZZ | AG | | B | X-TAL (32.768KHz) | [X1] |
| 16 | VCCCCY1HH150J | AB | | C | Capacitor (50WV 15pF)(1608Type) | [C11,12] |
| 17 | VCCCCY1HH471J | AA | | C | Capacitor (50WV 470pF) | [C1,5,6,7,8,14,15,16,17,18,19] |
| 18 | VCEAFX1AW226M | AK | N | C | Apro capacitor (22µF/10V) | [C45] |
| 19 | VCEAPS1CC106M | AC | | C | Capacitor (16WV 10µF) | [C30,32,38,39,42] |
| 20 | VCKYCY1HB102K | AA | | C | Capacitor (50WV 1000pF) | [C2,9,21,22,23,24,25,26,27,28] |
| 21 | VCKYCY1HB222K | AA | | C | Capacitor (50WV 2200pF) | [C20] |
| 22 | VCKYCY1HF104Z | AA | | C | Capacitor (50WV 0.10µF) | [C3,4,13,29,31,33,34,35,36,37,40,41,43] |
| 23 | VCKYTV1CB474K | AC | | C | Capacitor (16WV 0.47µF) | [C44] |
| 24 | VHD1SS353//-1 | AB | | B | Diode (1SS353) | [D1,2,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18] |
| | VHD1SS353//-1 | AB | | B | Diode (1SS353) | [D19,20,21,22,23,24,25,26,27,28,29] |
| | VHD1SS353//-1 | AB | | B | Diode (1SS353) | (UP-600)[D3] |
| 25 | VHi74LS138NS1 | AD | | B | IC (74LS138NS) | [IC5,6] |
| 26 | VHiBA00ASFP-1 | AR | | B | IC (BA00ASFP) | [IC9] |
| 27 | VHiH4728B02FS | AW | | B | IC (H4728B02FS) | [IC1] |
| 28 | VHiKiD65083AP | AM | | B | IC (KID65083AP) | [IC2] |
| 29 | VHiSN74HC153D | AK | | B | IC (SN74HC153DR) | [IC7,8] |
| 30 | VHiSN74LS125R | AL | | B | IC (SN74LS125DR) | [IC3,4] |
| 31 | VRS-CY1JD000J | AA | | C | Resistor (1/16W 0Ω ±5%)(Jumper/1608Type) | [R70] |
| 32 | VRS-CY1JD105J | AA | | C | Resistor (1/16W 1.0MΩ ±5%) | [R17] |
| 33 | VRS-CY1JD123J | AA | | C | Resistor (1/16W 12KΩ ±5%) | [R12,19,20,21,22,23,24,25] |
| 34 | VRS-CY1JD151J | AA | | C | Resistor (1/16W 150Ω ±5%) | [R57] |
| 35 | VRS-CY1JD181J | AA | | C | Resister (1/16W 180Ω ±5%) | [R58] |
| 36 | VRS-CY1JD221J | AA | | C | Resistor (1/16W 220Ω ±5%) | [R18,26,27,28,29,30,31,32] |
| 37 | VRS-CY1JD222J | AA | | C | Resistor (1/16W 2.2KΩ ±5%) | [R11] |
| 38 | VRS-CY1JD242F | AA | | C | Resistor (1/16W 2.4KΩ ±1%) | [R62] |
| 39 | VRS-CY1JD330J | AA | | C | Resistor (1/16W 33Ω ±5%) | [R9] |
| 40 | VRS-CY1JD472J | AA | | C | Resistor (1/16W 4.7KΩ ±5%) | [R7,8,33] |
| 41 | VRS-CY1JD473J | AA | | C | Resistor (1/16W 47KΩ ±5%) | [R5,6,34,35,36,37,38,39,40,41,42,43,44,45,46] |
| | VRS-CY1JD473J | AA | | C | Resistor (1/16W 47KΩ ±5%) | [R47,48,49,50,51,52,53,54,55,56] |
| 42 | VRS-CY1JD682F | AA | | C | Resistor (1/16W 6.8KΩ ±1%) | [R61] |
| 43 | VS2SC2412K//-1 | AB | | B | Transistor (2SC2412K) | [Q1] |
| 44 | VSKRC106S//-1 | AD | | B | Transistor (KRC106S) | [Q9,10,11,12,13,14,15] |
| 45 | VSKTA1664//-1 | AD | | B | Transistor (KTA1664) | [Q2,3,4,5,6,7,8] |
| 46 | QCNW-3134BHZZ | AE | N | C | GND wire (310mm) | [GND] |
| 47 | QCNW-3138BHZZ | AD | N | C | GND wire (100mm) | [GND] |
| | (Unit) | | | | | |
| 901 | CPWBN2885BH01 | BS | N | E | CKDC PWB unit | [UP-600] |
| | CPWBN2885BH02 | BS | N | E | CKDC PWB unit | [UP-700] |
| | | | | | | |
| | | | | | | |

## 9 RS232C PWB unit

| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION | |
|---|---|---|---|---|---|---|
| 1 | QCNCM1060AC03 | AB | | C | Connector (Short Pin 3P) | [S403,404] |
| 2 | QCNCM2788BH0i | BL | | C | Connector (D-SUB 9pin)(Straight type) | [CN402] |
| 3 | QCNCM2895BHZZ | AN | N | C | Connector (20Pin)(BM04-20S)(RS232C RELAY) | [CN401] |
| 4 | QCNCW1057ACZZ | AB | | C | Connector (Short socket) | [S404] |
| 5 | QCNCW2893BHZZ | AS | N | C | MODULE JACK Connector (3017S-8811) | [CN403] |
| 6 | QSW-S0744AFZZ | AG | | B | Reset switch (SSS312) | [S401] |
| 7 | VHHMiNSMDC020 | AF | | B | Thermistor (MiniSMD020-2) | [PF401] |
| 8 | QCNW-3138BHZZ | AD | N | C | GND wire (100mm) | [GND] |
| | (Unit) | | | | | |
| 901 | CPWBN2881BH01 | BK | N | E | RS232C PWB unit | |

## 10 MCR pole PWB unit

| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION | |
|---|---|---|---|---|---|---|
| 1 | QCNCM2902BHZZ | AF | N | C | MCR Connector (11Pin)(5483-11AX) | [CN503] |
| 2 | QCNCM2895BHZZ | AN | N | C | Connector (20Pin)(C05-20-A-G-1)(RELAY) | [CN501] |
| 3 | QCNCM7176BH0E | AC | | C | Connector (53014-0510) | [CN504] |
| 4 | QCNCM7176BH1J | AD | | C | Connector (53014-1010) | [CN502] |
| 5 | QCNCW2893BHZZ | AS | N | C | Module jack connector (3017S-8811) | [CN505] |
| 6 | RCORF2337BHZZ | AN | | C | Ferrite core (BFR601009C8NG) | [FB501] |
| 7 | QCNW-3138BHZZ | AD | N | C | GND wire (100mm) | [GND] |
| | (Unit) | | | | | |
| 901 | CPWBN2882BH01 | BH | N | E | MCR_POLE PWB unit | |

## 11 Pop up PWB unit

| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION | |
|---|---|---|---|---|---|---|
| 1 | QCNW-3116BHZZ | AU | N | C | Pop up cn. cable (15Pin) | [CN1] |
| 2 | VHPHDSP5621-1 | AM | | B | LED (2SEG GREEN)(HDSP5621) | [FND1,2,3,4] |
| 3 | VRD-RC2EY270J | AA | | C | Resistor (1/4W 27Ω ±5%) | [R10,12,14,16,18,20,22,24] |
| | (Unit) | | | | | |
| 901 | CPWBF2891BH01 | BR | N | E | Volume PWB unit | |

## 12 LCD HS unit

| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION | |
|---|---|---|---|---|---|---|
| 1 | QCNCM2890BHZZ | AF | N | C | LED BACKLIGHT Connector (53261-0290) | [CN2] |
| 2 | QCNCM2891BHZZ | AF | N | C | LCD VOLUME Connector (3Pin)(53261-0390) | [CN3] |
| 3 | QCNCW2886BHZZ | AL | N | C | LCD I/F Connector (00 6200 515 230 000) | [CN1] |
| 4 | RLMPY2000RCZZ | BF | N | B | LED backlight | |
| 5 | VCEAPF1HW105M | AE | N | C | Chip al.capacitor (1µF/50V) | [C10] |
| 6 | VCEAPF1HW475M | AE | N | C | Chip al.capacitor (4.7µF/50V) | [C9] |
| 7 | VCKYCY1HF104Z | AA | | C | Capacitor (50WV 0.10µF) | [C2,3,11] |
| 8 | VCKYTV1CF105Z | AB | | C | Capacitor (16WV 1µF) | [C1,4,5,6,7,8] |
| 9 | VHiLA5312V/-1 | AM | | B | IC (LA5312V) | [IC5] |
| 12 | VHiLM317LD+-1 | AL | N | B | IC (LM317L) | [IC6] |
| 13 | VRS-CY1JD000J | AA | | C | Resistor (1/16W 0Ω ±5%)(Jumper/1608Type) | [R7,8,10] |
| 14 | VRS-CY1JD180J | AA | | C | Resistor (1/16W 18Ω ±5%) | [R1,2,3,4,5] |
| 15 | VRS-CY1JD222J | AA | | C | Resistor (1/16W 2.2KΩ ±5%) | [R13] |
| 16 | VRS-CY1JD241J | AA | | C | Resistor (1/16W 240KΩ ±5%) | [R11] |
| 17 | VRS-CY1JD302J | AA | | C | Resistor (1/16W 3.0KΩ ±5%) | [R12] |
| 18 | VVLLF10036FAT | BF | N | B | LCD (LF10036FAT) | |
| | (Unit) | | | | | |
| 901 | DUNTK4234BHZZ | BW | N | E | LCD H/S PWB unit | |

## 13 Volume PWB unit

| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION | |
|---|---|---|---|---|---|---|
| 1 | QCNCM2891BHZZ | AF | N | C | LCD volume connector (3Pin)(53261-0390) | [CN201] |
| 2 | RVR-B2410QCZZ | AG | | B | Variable resistor (5K) | [VR201] |
| 3 | QCNW-3134BHZZ | AE | N | C | GND wire (310mm) | [GND] |
| | (Unit) | | | | | |
| 901 | CPWBN2889BH01 | BF | N | E | Volume PWB unit | |

## 14 Articles for copnsumption

| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION |
|---|---|---|---|---|---|
| 1 | TPAPR6656RC05 | BA | | S | Thermal roll paper (5 Rolls/pack) |
| 2 | TPAPR6657RC05 | BD | | S | Thermal roll paper(High preservatic type) (5 Rolls/pack) |
| 3 | PSHEK2926BHZA | AQ | N | S | Normal key sheet [UP-700] |
| 4 | PSHEK2927BHZA | AG | N | S | Character key sheet [UP-700] |
| 5 | PSHEK2930BHZZ | AG | N | S | Blank key sheet [UP-700] |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

## 15 Service options & Service tools

| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION |
|---|---|---|---|---|---|
| | LKGiM1004BH13 | BH | | S | Clerk key(13) (2pcs/1set,with key ring) |
| | LKGiM1004BH14 | BH | | S | Clerk key(14) (2pcs/1set,with key ring) |
| | LKGiM1004BH15 | BH | | S | Clerk key(15) (2pcs/1set,with key ring) |
| | LKGiM1004BH16 | BH | | S | Clerk key(16) (2pcs/1set,with key ring) |
| | LKGiM1004BH17 | BH | | S | Clerk key(17) (2pcs/1set,with key ring) |
| | LKGiM1004BH18 | BH | | S | Clerk key(18) (2pcs/1set,with key ring) |
| | LKGiM1004BH19 | BH | | S | Clerk key(19) (2pcs/1set,with key ring) |
| | LKGiM1004BH20 | BH | | S | Clerk key(20) (2pcs/1set,with key ring) |
| | LKGiM1004BH21 | BH | | S | Clerk key(21) (2pcs/1set,with key ring) |
| | LKGiM1004BH22 | BH | | S | Clerk key(22) (2pcs/1set,with key ring) |
| | LKGiM1004BH23 | BH | | S | Clerk key(23) (2pcs/1set,with key ring) |
| | LKGiM1004BH24 | BH | | S | Clerk key(24) (2pcs/1set,with key ring) |
| | LKGiM1004BH25 | BH | | S | Clerk key(25) (2pcs/1set,with key ring) |
| | LKGiM1004BH26 | BH | | S | Clerk key(26) (2pcs/1set,with key ring) |
| | LKGiM1004BH27 | BH | | S | Clerk key(27) (2pcs/1set,with key ring) |
| | LKGiM1004BH28 | BH | | S | Clerk key(28) (2pcs/1set,with key ring) |
| | LKGiM1004BH29 | BH | | S | Clerk key(29) (2pcs/1set,with key ring) |
| | LKGiM1004BH30 | BH | | S | Clerk key(30) (2pcs/1set,with key ring) |
| | LKGiM1004BH31 | BH | | S | Clerk key(31) (2pcs/1set,with key ring) |
| | LKGiM1004BH32 | BH | | S | Clerk key(32) (2pcs/1set,with key ring) |
| | LKGiM1004BH33 | BH | | S | Clerk key(33) (2pcs/1set,with key ring) |
| | LKGiM1004BH34 | BH | | S | Clerk key(34) (2pcs/1set,with key ring) |
| | LKGiM1004BH35 | BH | | S | Clerk key(35) (2pcs/1set,with key ring) |
| | LKGiM1004BH36 | BH | | S | Clerk key(36) (2pcs/1set,with key ring) |
| | LKGiM1004BH37 | BH | | S | Clerk key(37) (2pcs/1set,with key ring) |
| | LKGiM1004BH38 | BH | | S | Clerk key(38) (2pcs/1set,with key ring) |
| | LKGiM1004BH39 | BH | | S | Clerk key(39) (2pcs/1set,with key ring) |
| | LKGiM1004BH40 | BH | | S | Clerk key(40) (2pcs/1set,with key ring) |
| | LKGiM1004BH41 | BH | | S | Clerk key(41) (2pcs/1set,with key ring) |
| | LKGiM1004BH42 | BH | | S | Clerk key(42) (2pcs/1set,with key ring) |
| | LKGiM1004BH43 | BH | | S | Clerk key(43) (2pcs/1set,with key ring) |
| | LKGiM1004BH44 | BH | | S | Clerk key(44) (2pcs/1set,with key ring) |
| | LKGiM1004BH45 | BH | | S | Clerk key(45) (2pcs/1set,with key ring) |
| 1 | LKGiM1004BH46 | BH | | S | Clerk key(46) (2pcs/1set,with key ring) |
| | LKGiM1004BH47 | BH | | S | Clerk key(47) (2pcs/1set,with key ring) |
| | LKGiM1004BH48 | BH | | S | Clerk key(48) (2pcs/1set,with key ring) |
| | LKGiM1004BH49 | BH | | S | Clerk key(49) (2pcs/1set,with key ring) |
| | LKGiM1004BH50 | BH | | S | Clerk key(50) (2pcs/1set,with key ring) |
| | LKGiM1004BH51 | BH | | S | Clerk key(51) (2pcs/1set,with key ring) |
| | LKGiM1004BH52 | BH | | S | Clerk key(52) (2pcs/1set,with key ring) |
| | LKGiM1004BH53 | BH | | S | Clerk key(53) (2pcs/1set,with key ring) |
| | LKGiM1004BH54 | BH | | S | Clerk key(54) (2pcs/1set,with key ring) |
| | LKGiM1004BH55 | BH | | S | Clerk key(55) (2pcs/1set,with key ring) |
| | LKGiM1004BH56 | BH | | S | Clerk key(56) (2pcs/1set,with key ring) |
| | LKGiM1004BH57 | BH | | S | Clerk key(57) (2pcs/1set,with key ring) |
| | LKGiM1004BH59 | BH | | S | Clerk key(59) (2pcs/1set,with key ring) |
| | LKGiM1004BH60 | BH | | S | Clerk key(60) (2pcs/1set,with key ring) |
| | LKGiM1004BH61 | BH | | S | Clerk key(61) (2pcs/1set,with key ring) |
| | LKGiM1004BH62 | BH | | S | Clerk key(62) (2pcs/1set,with key ring) |
| | LKGiM1004BH63 | BH | | S | Clerk key(63) (2pcs/1set,with key ring) |
| | LKGiM1004BH64 | BH | | S | Clerk key(64) (2pcs/1set,with key ring) |
| | LKGiM1004BH65 | BH | | S | Clerk key(65) (2pcs/1set,with key ring) |
| | LKGiM1004BH66 | BH | | S | Clerk key(66) (2pcs/1set,with key ring) |
| | LKGiM1004BH67 | BH | | S | Clerk key(67) (2pcs/1set,with key ring) |
| | LKGiM1004BH68 | BH | | S | Clerk key(68) (2pcs/1set,with key ring) |
| | LKGiM1004BH69 | BH | | S | Clerk key(69) (2pcs/1set,with key ring) |
| | LKGiM1004BH70 | BH | | S | Clerk key(70) (2pcs/1set,with key ring) |
| | LKGiM1004BH71 | BH | | S | Clerk key(71) (2pcs/1set,with key ring) |
| | LKGiM1004BH72 | BH | | S | Clerk key(72) (2pcs/1set,with key ring) |
| | LKGiM1004BH73 | BH | | S | Clerk key(73) (2pcs/1set,with key ring) |
| | LKGiM1004BH74 | BH | | S | Clerk key(74) (2pcs/1set,with key ring) |
| | LKGiM1004BH75 | BH | | S | Clerk key(75) (2pcs/1set,with key ring) |
| | LKGiM1004BH76 | BH | | S | Clerk key(76) (2pcs/1set,with key ring) |
| | LKGiM1004BH77 | BH | | S | Clerk key(77) (2pcs/1set,with key ring) |
| | LKGiM1004BH78 | BH | | S | Clerk key(78) (2pcs/1set,with key ring) |
| | LKGiM1004BH79 | BH | | S | Clerk key(79) (2pcs/1set,with key ring) |
| | LKGiM1004BH80 | BH | | S | Clerk key(80) (2pcs/1set,with key ring) |

## 15 Service options & Service tools

| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION |
|---|---|---|---|---|---|
| 1 | LKGiM1004BH81 | BH | | S | Clerk key(81) (2pcs/1set,with key ring) |
| | LKGiM1004BH82 | BH | | S | Clerk key(82) (2pcs/1set,with key ring) |
| | LKGiM1004BH83 | BH | | S | Clerk key(83) (2pcs/1set,with key ring) |
| | LKGiM1004BH84 | BH | | S | Clerk key(84) (2pcs/1set,with key ring) |
| | LKGiM1004BH85 | BH | | S | Clerk key(85) (2pcs/1set,with key ring) |
| | LKGiM1004BH86 | BH | | S | Clerk key(86) (2pcs/1set,with key ring) |
| | LKGiM1004BH87 | BH | | S | Clerk key(87) (2pcs/1set,with key ring) |
| | LKGiM1004BH88 | BH | | S | Clerk key(88) (2pcs/1set,with key ring) |
| | LKGiM1004BH89 | BH | | S | Clerk key(89) (2pcs/1set,with key ring) |
| | LKGiM1004BH90 | BH | | S | Clerk key(90) (2pcs/1set,with key ring) |
| | LKGiM1004BH91 | BH | | S | Clerk key(91) (2pcs/1set,with key ring) |
| | LKGiM1004BH92 | BH | | S | Clerk key(92) (2pcs/1set,with key ring) |
| | LKGiM1004BH93 | BH | | S | Clerk key(93) (2pcs/1set,with key ring) |
| | LKGiM1004BH94 | BH | | S | Clerk key(94) (2pcs/1set,with key ring) |
| | LKGiM1004BH95 | BH | | S | Clerk key(95) (2pcs/1set,with key ring) |
| | LKGiM1004BH96 | BH | | S | Clerk key(96) (2pcs/1set,with key ring) |
| | LKGiM1004BH97 | BH | | S | Clerk key(97) (2pcs/1set,with key ring) |
| | LKGiM1004BH98 | BH | | S | Clerk key(98) (2pcs/1set,with key ring) |
| | LKGiM1004BH99 | BH | | S | Clerk key(99) (2pcs/1set,with key ring) |
| | LKGiM1004BH00 | BH | | S | Clerk key(100) (2pcs/1set,with key ring) |
| | LKGiM1004BHA1 | BH | | S | Clerk key(101) (2pcs/1set,with key ring) |
| | LKGiM1004BHA2 | BH | | S | Clerk key(102) (2pcs/1set,with key ring) |
| | LKGiM1004BHA3 | BH | | S | Clerk key(103) (2pcs/1set,with key ring) |
| | LKGiM1004BHA4 | BH | | S | Clerk key(104) (2pcs/1set,with key ring) |
| | LKGiM1004BHA5 | BH | | S | Clerk key(105) (2pcs/1set,with key ring) |
| | LKGiM1004BHA6 | BH | | S | Clerk key(106) (2pcs/1set,with key ring) |
| | LKGiM1004BHA7 | BH | | S | Clerk key(107) (2pcs/1set,with key ring) |
| | LKGiM1004BHA8 | BH | | S | Clerk key(108) (2pcs/1set,with key ring) |
| | LKGiM1004BHA9 | BH | | S | Clerk key(109) (2pcs/1set,with key ring) |
| | LKGiM1004BHA0 | BH | | S | Clerk key(110) (2pcs/1set,with key ring) |
| | LKGiM1004BHB1 | BH | | S | Clerk key(111) (2pcs/1set,with key ring) |
| | LKGiM1004BHB2 | BH | | S | Clerk key(112) (2pcs/1set,with key ring) |
| | LKGiM1004BHB3 | BH | | S | Clerk key(113) (2pcs/1set,with key ring) |
| | LKGiM1004BHB4 | BH | | S | Clerk key(114) (2pcs/1set,with key ring) |
| | LKGiM1004BHB5 | BH | | S | Clerk key(115) (2pcs/1set,with key ring) |
| | LKGiM1004BHB6 | BH | | S | Clerk key(116) (2pcs/1set,with key ring) |
| | LKGiM1004BHB7 | BH | | S | Clerk key(117) (2pcs/1set,with key ring) |
| | LKGiM1004BHB8 | BH | | S | Clerk key(118) (2pcs/1set,with key ring) |
| | LKGiM1004BHB9 | BH | | S | Clerk key(119) (2pcs/1set,with key ring) |
| | LKGiM1004BHB0 | BH | | S | Clerk key(120) (2pcs/1set,with key ring) |
| | LKGiM1004BHC1 | BH | | S | Clerk key(121) (2pcs/1set,with key ring) |
| | LKGiM1004BHC2 | BH | | S | Clerk key(122) (2pcs/1set,with key ring) |
| | LKGiM1004BHC3 | BH | | S | Clerk key(123) (2pcs/1set,with key ring) |
| | LKGiM1004BHC4 | BH | | S | Clerk key(124) (2pcs/1set,with key ring) |
| | LKGiM1004BHC5 | BH | | S | Clerk key(125) (2pcs/1set,with key ring) |
| | LKGiM1004BHC6 | BH | | S | Clerk key(126) (2pcs/1set,with key ring) |
| 2 | LKGiM7126BHZZ | AX | | S | Mode key grip cover (for MA key only) |
| 3 | GCŌVB7109BHZZ | BF | | S | Normal key cover [UP-600] |
| 4 | GCŌVB7108BHZZ | BA | N | S | Dripproof mode s/w cover |
| 5 | GCŌVB7110BHSA | BG | N | S | Dripproof preset key cover [UP-600] |
| 6 | DKiT-8669BHZZ | | | S | One hole cashier key [UP-600] |
| 7 | DKiT-3409BHZZ | AP | N | S | Drawer separation kit [KA,KB] |
| 101 | LKGiM7113BHZZ | AF | | S | Service key |
| 102 | UKŌG-6705RCZZ | BC | | S | RS-232 loop back connector (for RS232 D-SUB 9pin connector) |
| 103 | UKŌG-6729BHZZ | AZ | | S | RS232 moduler jack loop back connector (for RS232 RJ45 Moduler jack connector) |
| 104 | CKŌG-6708RCZZ | BU | | S | Expansion PWB (ER-A5RS or ER-01EF) |
| 105 | UKŌG-2357RCZZ | BL | | S | MCR test card (for UP-E13MR) |
| 106 | UKŌG-6634RCZZ | AX | | S | Key top remover (for UP-600 only) |
| 107 | UKŌG-6725BHZZ | BB | | S | Key top installing jig (2×2) (for 2×2 key top) |

## ■ Index

| PARTS CODE | NO. | PRICE RANK | NEW MARK | PART RANK | |
|---|---|---|---|---|---|
| 【C】 | | | | | |
| CCABM2563BHZZ | 4- 2 | BK | N | D | |
| CCAS-6678BH01 | 4-501 | BF | | E | |
| CFRM-6682BH02 | 4-504 | AQ | | E | |
| CFRM-6683BH01 | 4- 16 | AW | | D | |
| CKGiM2421BH01 | 5- 17 | AR | N | B | |
| CKGiM2421BH02 | 5- 17 | AR | N | B | |
| CKGiM2421BH03 | 5- 17 | AR | N | B | |
| CKGiM2421BH04 | 5- 17 | AR | N | B | |
| CKGiM2421BH05 | 5- 17 | AR | N | B | |
| CKGiM2421BH06 | 5- 17 | AR | N | B | |
| CKGiM2421BH07 | 5- 17 | AR | N | B | |
| CKGiM2421BH08 | 5- 17 | AR | N | B | |
| CKGiM2421BH09 | 5- 17 | AR | N | B | |
| CKGiM2421BH10 | 5- 17 | AR | N | B | |
| CKGiM2421BH11 | 5- 17 | AR | N | B | |
| CKGiM2421BH12 | 5- 17 | AE | N | B | |
| CKŌG-6708RCZZ | 15-104 | BU | | S | |
| CLŌK-6683BH08 | 4-503 | BK | N | E | |
| CPLU-6641BH06 | 4- 15 | AY | N | B | |
| CPWBF2891BH01 | 1- 2 | BR | N | E | |
| 〃 | 2- 2 | BR | N | E | |
| 〃 | 11-901 | BR | N | E | |
| CPWBN2881BH01 | 3- 34 | BK | N | E | |
| 〃 | 9-901 | BK | N | E | |
| CPWBN2882BH01 | 3- 33 | BH | N | E | |
| 〃 | 10-901 | BH | N | E | |
| CPWBN2885BH01 | 1- 29 | BS | N | E | |
| 〃 | 8-901 | BS | N | E | |
| CPWBN2885BH02 | 2- 29 | BS | N | E | |
| 〃 | 8-901 | BS | N | E | |
| CPWBN2889BH01 | 1- 7 | BF | N | E | |
| 〃 | 2- 7 | BF | N | E | |
| 〃 | 13-901 | BF | N | E | |
| CPWBX2884BH01 | 3- 19 | CT | N | E | |
| 〃 | 6-901 | CT | N | E | |
| CPWBX2886BH01 | 3- 21 | BS | N | E | |
| 〃 | 7-901 | BS | N | E | |
| CSHEP6833BH01 | 1- 46 | BA | | C | |
| 【D】 | | | | | |
| DKiT-3409BHZZ | 15- 7 | AP | N | S | |
| DKiT-8669BHZZ | 15- 6 | | | S | |
| DUNT-1306BHZA | 4- 42 | AX | | E | |
| DUNT-1817BHZA | 1-502 | BE | N | E | |
| 〃 | 2-502 | BE | N | E | |
| DUNT-1817BHZZ | 1-502 | AY | | E | |
| 〃 | 2-502 | AY | | E | |
| DUNTK4234BHZZ | 1- 13 | BW | N | E | |
| 〃 | 2- 13 | BW | N | E | |
| 〃 | 12-901 | BW | N | E | |
| 【G】 | | | | | |
| GBŌXD7155BHZZ | 4-901 | BW | N | E | |
| GCABA7216BHZD | 3- 25 | BH | N | D | |
| GCABB2558BHZA | 1- 20 | BE | N | D | |
| GCABB2559BHZA | 2- 20 | BD | N | D | |
| GCABB7861BHZZ | 1- 1 | AN | | D | |
| 〃 | 2- 1 | AN | | D | |
| GCABF2560BHZZ | 1- 6 | AQ | N | D | |
| 〃 | 2- 6 | AQ | N | D | |
| GCABR2561BHZA | 1- 18 | AS | N | D | |
| 〃 | 2- 18 | AS | N | D | |
| GCAS-6678BHZZ | 4- 12 | BC | | D | |
| GCŌVA2514BHZA | 1- 25 | BA | N | D | |
| 〃 | 2- 25 | BA | N | D | |
| GCŌVA7104BHZA | 3- 41 | AX | N | D | |
| GCŌVA7105BHSA | 3- 22 | AL | N | D | |
| GCŌVA7107BHSA | 3- 23 | AH | N | D | |
| GCŌVA7107BHSC | 3- 23 | AH | N | D | |
| GCŌVA7146BHZZ | 4- 32 | AV | | D | |
| GCŌVB2517BHZZ | 2- 39 | BC | N | D | |
| GCŌVB7108BHZZ | 15- 4 | BA | N | S | |
| GCŌVB7109BHZZ | 15- 3 | BF | | S | |
| GCŌVB7110BHSA | 15- 5 | BG | N | S | |
| GCŌVH7106BHZB | 3- 45 | AU | N | D | |
| GDRW-6678BHZZ | 4- 31 | BF | | D | |
| GDRW-6684BHZZ | 4-502 | BH | | E | |
| 【H】 | | | | | |
| HPNLC6829BHSA | 1- 19 | AM | N | D | |
| HPNLC6829BHSB | 2- 19 | AM | N | D | |

| PARTS CODE | NO. | PRICE RANK | NEW MARK | PART RANK | |
|---|---|---|---|---|---|
| HPNLH2483BHZZ | 1- 4 | AW | N | D | |
| 〃 | 2- 4 | AW | N | D | |
| 【J】 | | | | | |
| JKNBZ6896BHZA | 1- 43 | AG | | C | |
| JKNBZ6897BHSA | 1- 42 | AH | | C | |
| JKNBZ6898BHZZ | 1- 40 | AH | | C | |
| JKNBZ6899BHSA | 1- 39 | AK | | C | |
| JKNBZ6905BHZZ | 1- 41 | AF | | C | |
| JKNBZ6906BHZZ | 1- 41 | AK | | C | |
| JKNBZ6907BHZZ | 1- 41 | AK | | C | |
| JKNBZ6908BHZZ | 1- 41 | AK | | C | |
| JKNBZ6909BHZZ | 1- 41 | AK | | C | |
| JKNBZ6911BHZZ | 1- 41 | AK | | C | |
| JKNBZ6912BHZZ | 1- 41 | AK | | C | |
| JKNBZ6913BHZZ | 1- 41 | AK | | C | |
| JKNBZ6914BHZZ | 1- 41 | AK | | C | |
| JKNBZ6915BHZZ | 1- 41 | AK | | C | |
| JKNBZ6916BHZZ | 1- 41 | AK | | C | |
| JKNBZ6917BHZZ | 1- 41 | AK | | C | |
| JKNBZ6918BHZZ | 1- 41 | AK | | C | |
| JKNBZ6919BHZZ | 1- 41 | AK | | C | |
| JKNBZ6920BHZZ | 1- 41 | AK | | C | |
| 【K】 | | | | | |
| Ki-ŌB2010BHZZ | 3- 31 | CF | N | E | |
| Ki-ŌK2012BHZA | 2-501 | BK | N | E | |
| Ki-ŌK2368BHZZ | 1-501 | BN | N | E | |
| 【L】 | | | | | |
| LANGK2898BHZZ | 1- 12 | AM | N | C | |
| 〃 | 2- 12 | AM | N | C | |
| LANGT7581BHZZ | 3- 52 | AM | | C | |
| LANGT7582BHZZ | 1- 38 | AL | | C | |
| 〃 | 2- 38 | AL | | C | |
| LBNDJ2003SCZZ | 1- 9 | AA | | C | |
| 〃 | 2- 9 | AA | | C | |
| 〃 | 3- 8 | AA | | C | |
| LBNDJ6636BHZZ | 3- 3 | AD | | C | |
| LBRC-6663BHZZ | 4- 6 | AQ | | C | |
| LCHSM6704BHZA | 3- 39 | AZ | | C | |
| LFRM-2363BHZA | 2- 44 | AX | N | D | |
| LFRM-6682BHZZ | 4- 22 | AN | | D | |
| LFRM-6697BHZZ | 1- 44 | BA | | D | |
| LHLDQ6839BHZA | 3- 15 | AL | N | C | |
| LHLDW0006SCZZ | 3- 10 | AB | | C | |
| LHLDW0007SCZZ | 3- 12 | AA | | C | |
| LHLDW0008SCZZ | 1- 22 | AA | | C | |
| 〃 | 2- 22 | AA | | C | |
| LHLDW0024BHZZ | 4- 19 | AG | | C | |
| LHLDW2386BHZZ | 3- 13 | AD | N | C | |
| 〃 | 6- 1 | AD | N | C | |
| LHLDZ6836BHZZ | 1- 50 | AE | | C | |
| LHLDZ6837BHZZ | 1- 49 | AE | | C | |
| LKGiM1004BH00 | 15- 1 | BH | | S | |
| LKGiM1004BH13 | 15- 1 | BH | | S | |
| LKGiM1004BH14 | 15- 1 | BH | | S | |
| LKGiM1004BH15 | 15- 1 | BH | | S | |
| LKGiM1004BH16 | 15- 1 | BH | | S | |
| LKGiM1004BH17 | 15- 1 | BH | | S | |
| LKGiM1004BH18 | 15- 1 | BH | | S | |
| LKGiM1004BH19 | 15- 1 | BH | | S | |
| LKGiM1004BH20 | 15- 1 | BH | | S | |
| LKGiM1004BH21 | 15- 1 | BH | | S | |
| LKGiM1004BH22 | 15- 1 | BH | | S | |
| LKGiM1004BH23 | 15- 1 | BH | | S | |
| LKGiM1004BH24 | 15- 1 | BH | | S | |
| LKGiM1004BH25 | 15- 1 | BH | | S | |
| LKGiM1004BH26 | 15- 1 | BH | | S | |
| LKGiM1004BH27 | 15- 1 | BH | | S | |
| LKGiM1004BH28 | 15- 1 | BH | | S | |
| LKGiM1004BH29 | 15- 1 | BH | | S | |
| LKGiM1004BH30 | 15- 1 | BH | | S | |
| LKGiM1004BH31 | 15- 1 | BH | | S | |
| LKGiM1004BH32 | 15- 1 | BH | | S | |
| LKGiM1004BH33 | 15- 1 | BH | | S | |
| LKGiM1004BH34 | 15- 1 | BH | | S | |
| LKGiM1004BH35 | 15- 1 | BH | | S | |
| LKGiM1004BH36 | 15- 1 | BH | | S | |
| LKGiM1004BH37 | 15- 1 | BH | | S | |
| LKGiM1004BH38 | 15- 1 | BH | | S | |
| LKGiM1004BH39 | 15- 1 | BH | | S | |
| LKGiM1004BH40 | 15- 1 | BH | | S | |
| LKGiM1004BH41 | 15- 1 | BH | | S | |

| PARTS CODE | NO. | PRICE RANK | NEW MARK | PART RANK | |
|---|---|---|---|---|---|
| LKGiM1004BH42 | 15- 1 | BH | | S | |
| LKGiM1004BH43 | 15- 1 | BH | | S | |
| LKGiM1004BH44 | 15- 1 | BH | | S | |
| LKGiM1004BH45 | 15- 1 | BH | | S | |
| LKGiM1004BH46 | 15- 1 | BH | | S | |
| LKGiM1004BH47 | 15- 1 | BH | | S | |
| LKGiM1004BH48 | 15- 1 | BH | | S | |
| LKGiM1004BH49 | 15- 1 | BH | | S | |
| LKGiM1004BH50 | 15- 1 | BH | | S | |
| LKGiM1004BH51 | 15- 1 | BH | | S | |
| LKGiM1004BH52 | 15- 1 | BH | | S | |
| LKGiM1004BH53 | 15- 1 | BH | | S | |
| LKGiM1004BH54 | 15- 1 | BH | | S | |
| LKGiM1004BH55 | 15- 1 | BH | | S | |
| LKGiM1004BH56 | 15- 1 | BH | | S | |
| LKGiM1004BH57 | 15- 1 | BH | | S | |
| LKGiM1004BH59 | 15- 1 | BH | | S | |
| LKGiM1004BH60 | 15- 1 | BH | | S | |
| LKGiM1004BH61 | 15- 1 | BH | | S | |
| LKGiM1004BH62 | 15- 1 | BH | | S | |
| LKGiM1004BH63 | 15- 1 | BH | | S | |
| LKGiM1004BH64 | 15- 1 | BH | | S | |
| LKGiM1004BH65 | 15- 1 | BH | | S | |
| LKGiM1004BH66 | 15- 1 | BH | | S | |
| LKGiM1004BH67 | 15- 1 | BH | | S | |
| LKGiM1004BH68 | 15- 1 | BH | | S | |
| LKGiM1004BH69 | 15- 1 | BH | | S | |
| LKGiM1004BH70 | 15- 1 | BH | | S | |
| LKGiM1004BH71 | 15- 1 | BH | | S | |
| LKGiM1004BH72 | 15- 1 | BH | | S | |
| LKGiM1004BH73 | 15- 1 | BH | | S | |
| LKGiM1004BH74 | 15- 1 | BH | | S | |
| LKGiM1004BH75 | 15- 1 | BH | | S | |
| LKGiM1004BH76 | 15- 1 | BH | | S | |
| LKGiM1004BH77 | 15- 1 | BH | | S | |
| LKGiM1004BH78 | 15- 1 | BH | | S | |
| LKGiM1004BH79 | 15- 1 | BH | | S | |
| LKGiM1004BH80 | 15- 1 | BH | | S | |
| LKGiM1004BH81 | 15- 1 | BH | | S | |
| LKGiM1004BH82 | 15- 1 | BH | | S | |
| LKGiM1004BH83 | 15- 1 | BH | | S | |
| LKGiM1004BH84 | 15- 1 | BH | | S | |
| LKGiM1004BH85 | 15- 1 | BH | | S | |
| LKGiM1004BH86 | 15- 1 | BH | | S | |
| LKGiM1004BH87 | 15- 1 | BH | | S | |
| LKGiM1004BH88 | 15- 1 | BH | | S | |
| LKGiM1004BH89 | 15- 1 | BH | | S | |
| LKGiM1004BH90 | 15- 1 | BH | | S | |
| LKGiM1004BH91 | 15- 1 | BH | | S | |
| LKGiM1004BH92 | 15- 1 | BH | | S | |
| LKGiM1004BH93 | 15- 1 | BH | | S | |
| LKGiM1004BH94 | 15- 1 | BH | | S | |
| LKGiM1004BH95 | 15- 1 | BH | | S | |
| LKGiM1004BH96 | 15- 1 | BH | | S | |
| LKGiM1004BH97 | 15- 1 | BH | | S | |
| LKGiM1004BH98 | 15- 1 | BH | | S | |
| LKGiM1004BH99 | 15- 1 | BH | | S | |
| LKGiM1004BHA0 | 15- 1 | BH | | S | |
| LKGiM1004BHA1 | 15- 1 | BH | | S | |
| LKGiM1004BHA2 | 15- 1 | BH | | S | |
| LKGiM1004BHA3 | 15- 1 | BH | | S | |
| LKGiM1004BHA4 | 15- 1 | BH | | S | |
| LKGiM1004BHA5 | 15- 1 | BH | | S | |
| LKGiM1004BHA6 | 15- 1 | BH | | S | |
| LKGiM1004BHA7 | 15- 1 | BH | | S | |
| LKGiM1004BHA8 | 15- 1 | BH | | S | |
| LKGiM1004BHA9 | 15- 1 | BH | | S | |
| LKGiM1004BHB0 | 15- 1 | BH | | S | |
| LKGiM1004BHB1 | 15- 1 | BH | | S | |
| LKGiM1004BHB2 | 15- 1 | BH | | S | |
| LKGiM1004BHB3 | 15- 1 | BH | | S | |
| LKGiM1004BHB4 | 15- 1 | BH | | S | |
| LKGiM1004BHB5 | 15- 1 | BH | | S | |
| LKGiM1004BHB6 | 15- 1 | BH | | S | |
| LKGiM1004BHB7 | 15- 1 | BH | | S | |
| LKGiM1004BHB8 | 15- 1 | BH | | S | |
| LKGiM1004BHB9 | 15- 1 | BH | | S | |
| LKGiM1004BHC1 | 15- 1 | BH | | S | |
| LKGiM1004BHC2 | 15- 1 | BH | | S | |
| LKGiM1004BHC3 | 15- 1 | BH | | S | |
| LKGiM1004BHC4 | 15- 1 | BH | | S | |

| PARTS CODE | NO. | PRICE RANK | NEW MARK | PART RANK | |
|---|---|---|---|---|---|
| LKGiM1004BHC5 | 15- 1 | BH | | S | |
| LKGiM1004BHC6 | 15- 1 | BH | | S | |
| LKGiM7110BHZZ | 1- 34 | AE | | B | |
| 〃 | 2- 34 | AE | | B | |
| 〃 | 5- 10 | AE | | B | |
| LKGiM7111BHZZ | 1- 34 | AE | | B | |
| 〃 | 2- 34 | AE | | B | |
| 〃 | 5- 10 | AE | | B | |
| LKGiM7113BHZZ | 15-101 | AF | | S | |
| LKGiM7126BHZZ | 15- 2 | AX | | S | |
| LKGiM7129BHZZ | 1- 34 | AE | | B | |
| 〃 | 2- 34 | AE | | B | |
| 〃 | 5- 10 | AE | | B | |
| LKGiM7331BHZZ | 4- 35 | AE | | B | |
| 〃 | 5- 9 | AE | | B | |
| LKGiM7356BHZZ | 1- 28 | AK | | B | |
| 〃 | 2- 28 | AK | | B | |
| 〃 | 5- 8 | AK | | B | |
| LKGiW0001BHZA | 1- 35 | AS | | B | |
| 〃 | 2- 35 | AS | | B | |
| LKGiW7330BHZZ | 4- 33 | AY | | B | |
| LKGiW7355BHZB | 1- 27 | BB | N | B | |
| 〃 | 2- 27 | BB | N | B | |
| LKGiW7355BHZZ | 1- 27 | AX | | B | |
| 〃 | 2- 27 | AX | | B | |
| LKGiW7375BHZA | 3- 47 | BH | | B | |
| LPLTM2363BHZZ | 2- 47 | AU | N | C | |
| LPLTM6674BHZC | 4- 37 | AY | | C | |
| LPLTM6698BHZZ | 1- 47 | AV | | C | |
| LPLTP2362BHZZ | 3- 37 | AR | N | C | |
| LX-BZ1085CCZZ | 3- 2 | AA | | C | |
| LX-BZ6644BHZZ | 6- 2 | AA | | C | |
| LX-BZ6775BHZZ | 4- 17 | AA | | C | |
| LX-BZ6776BHZZ | 4- 13 | AA | | C | |
| LX-HZ0056BHZZ | 3- 44 | AA | | C | |
| 【M】 | | | | | |
| MCAMM6633BHZA | 4- 21 | AE | | C | |
| MHNG-2327BHZA | 1- 10 | AX | N | C | |
| 〃 | 2- 10 | AX | N | C | |
| MLEVF6695BHZZ | 4- 8 | AK | | C | |
| MLEVP6715BHZZ | 3- 32 | AF | | C | |
| MSPRB6711BHZZ | 4- 40 | AD | | C | |
| MSPRC6712BHZZ | 4- 27 | AF | | C | |
| MSPRK6718BHZZ | 4- 36 | AF | | C | |
| MSPRK6730BHZZ | 1- 26 | AC | | C | |
| 〃 | 2- 26 | AC | | C | |
| MSPRT6713BHZZ | 4- 18 | AD | | C | |
| MSPRT6714BHZZ | 4- 7 | AE | | C | |
| 【N】 | | | | | |
| NGERH2004BHZZ | 5- 19 | AM | | C | |
| NRŌLP6650BHZZ | 4- 4 | AP | | C | |
| 〃 | 4- 28 | AP | | C | |
| NRŌLP6656BHZZ | 3- 36 | AF | | C | |
| 【P】 | | | | | |
| PCUSS2419BHZZ | 1- 61 | AH | N | C | |
| PCUSS2420BHZZ | 1- 53 | AF | N | C | |
| 〃 | 2- 53 | AF | N | C | |
| PCUSS2421BHZZ | 1- 56 | AC | N | C | |
| 〃 | 2- 56 | AC | N | C | |
| PCUSS2422BHZZ | 1- 54 | AC | N | C | |
| 〃 | 2- 54 | AC | N | C | |
| PFiLW2006BHZZ | 1- 24 | AU | N | D | |
| 〃 | 2- 24 | AU | N | D | |
| PFiLW2008BHZZ | 1- 5 | AS | N | D | |
| 〃 | 2- 5 | AS | N | D | |
| PFiLW6961BHZZ | 1- 3 | AP | | D | |
| 〃 | 2- 3 | AP | | D | |
| PGiDH2394BHZZ | 5- 20 | AK | | C | |
| PGUMM2442BHZZ | 2- 45 | BA | N | C | |
| PGUMM6695BHZZ | 4- 3 | AE | | C | |
| PGUMM6696BHZZ | 3- 42 | AE | | C | |
| 〃 | 4- 25 | AE | | C | |
| PGUMM6724BHZZ | 1- 45 | AY | | C | |
| PRDAF2374BHZA | 6- 3 | AM | | C | |
| PRDAF6661BHZC | 6- 4 | AK | N | C | |
| PRNGT6637BHZZ | 4- 34 | AA | | C | |
| PRNGT6641BHZZ | 5- 17 | AE | | C | |
| PSHEK2926BHZA | 2- 40 | AQ | N | C | |
| 〃 | 14- 3 | AQ | N | S | |
| PSHEK2927BHZA | 2- 41 | AG | N | C | |
| 〃 | 14- 4 | AG | N | S | |

| PARTS CODE | NO. | PRICE RANK | NEW MARK | PART RANK | |
|---|---|---|---|---|---|
| PSHEK2930BHZZ | 14- 5 | AG | N | S | |
| PSHEP2923BHZZ | 2- 46 | BB | N | C | |
| PSHEP2925BHZZ | 1- 51 | AR | N | C | |
| PSHEP2928BHZZ | 1- 52 | AF | N | C | |
| 〃 | 2- 52 | AF | N | C | |
| PSHEP2933BHZZ | 3- 26 | AF | N | C | |
| PSHEP2934BHZZ | 2- 51 | AU | N | C | |
| PSHEP2937BHZZ | 1- 55 | AG | N | C | |
| 〃 | 2- 55 | AG | N | C | |
| PSHEP2938BHZZ | 1- 58 | AE | N | C | |
| 〃 | 2- 58 | AE | N | C | |
| PSHEP6681BHZZ | 5- 3 | AF | | D | |
| PSKR-6628BHZZ | 4- 11 | AG | | C | |
| PSKR-6629BHZZ | 4- 9 | AL | | C | |
| 【Q】 | | | | | |
| QACCE3120BHZZ | 3- 1 | AV | | B | |
| QACCL1018BHZZ | 3- 1 | AU | | B | |
| QCNCM1060AC03 | 9- 1 | AB | | C | |
| QCNCM1101BHZZ | 6- 5 | AC | | C | |
| QCNCM2788BH0i | 9- 2 | BL | | C | |
| QCNCM2890BHZZ | 12- 1 | AF | N | C | |
| QCNCM2891BHZZ | 12- 2 | AF | N | C | |
| 〃 | 13- 1 | AF | N | C | |
| QCNCM2895BHZZ | 9- 3 | AN | N | C | |
| 〃 | 10- 2 | AN | N | C | |
| QCNCM2896BHZZ | 6- 6 | AQ | N | C | |
| QCNCM2901BHZZ | 6- 11 | AG | N | C | |
| QCNCM2902BHZZ | 10- 1 | AF | N | C | |
| QCNCM5278NCZZ | 6- 7 | AC | | C | |
| QCNCM7073RC6H | 6- 8 | AM | | C | |
| QCNCM7142BH1B | 8- 2 | AD | | C | |
| QCNCM7176BH0E | 10- 3 | AC | | C | |
| QCNCM7176BH0H | 8- 3 | AD | | C | |
| QCNCM7176BH1E | 8- 4 | AE | | C | |
| QCNCM7176BH1J | 10- 4 | AD | | C | |
| QCNCM7207BH4J | 6- 9 | AQ | | C | |
| QCNCW1057ACZZ | 9- 4 | AB | | C | |
| QCNCW2423BH0E | 3- 49 | AE | | C | |
| QCNCW2879BHZZ | 6- 10 | AT | N | C | |
| 〃 | 7- 1 | AT | N | C | |
| QCNCW2882BHZZ | 6- 12 | AU | N | C | |
| QCNCW2885BHZZ | 7- 2 | AQ | | C | |
| QCNCW2886BHZZ | 12- 3 | AL | N | C | |
| QCNCW2888BHZZ | 8- 1 | AN | | C | |
| QCNCW2892BHZZ | 3- 48 | AD | N | C | |
| QCNCW2893BHZZ | 9- 5 | AS | N | C | |
| 〃 | 10- 5 | AS | N | C | |
| QCNCW6882BH1A | 8- 5 | AG | | C | |
| QCNCW7081BHZZ | 8- 6 | AB | | C | |
| QCNCW7118BH0i | 8- 7 | AG | | C | |
| QCNCW7118BH1H | 8- 8 | AM | | C | |
| QCNW-1035CCZZ | 3- 1 | AL | | B | |
| QCNW-3113BHZZ | 3- 20 | AQ | N | C | |
| QCNW-3114BHZZ | 1- 62 | AX | N | C | |
| 〃 | 2- 62 | AX | N | C | |
| 〃 | 8- 9 | AX | N | C | |
| QCNW-3115BHZZ | 3- 11 | BC | N | C | |
| QCNW-3116BHZZ | 11- 1 | AU | N | C | |
| QCNW-3117BHZZ | 1- 36 | AG | N | C | |
| 〃 | 2- 36 | AG | N | C | |
| QCNW-3118BHZZ | 1- 17 | AG | N | C | |
| 〃 | 2- 17 | AG | N | C | |
| QCNW-3119BHZZ | 1- 8 | AL | N | C | |
| 〃 | 2- 8 | AL | N | C | |
| QCNW-3120BHZZ | 3- 50 | AL | N | C | |
| QCNW-3133BHZZ | 1- 16 | AK | N | C | |
| 〃 | 2- 16 | AK | N | C | |
| QCNW-3134BHZZ | 8- 46 | AE | N | C | |
| 〃 | 13- 3 | AE | N | C | |
| QCNW-3135BHZZ | 6- 13 | AD | N | C | |
| QCNW-3136BHZZ | 8- 10 | AD | N | C | |
| QCNW-3137BHZZ | 1- 57 | AE | N | C | |
| 〃 | 2- 57 | AE | N | C | |
| QCNW-3138BHZZ | 8- 47 | AD | N | C | |
| 〃 | 9- 8 | AD | N | C | |
| 〃 | 10- 7 | AD | N | C | |
| QCNW-7122RCZZ | 3- 28 | AD | | C | |
| QCNW-7752BHZZ | 3- 18 | AH | | C | |
| QCNW-7767BHZZ | 3- 6 | AE | | C | |
| QCNW-7768BHZZ | 3- 4 | AE | | C | |
| QCNW-7880BHZZ | 1- 31 | AF | | C | |

| PARTS CODE | NO. | PRICE RANK | NEW MARK | PART RANK | |
|---|---|---|---|---|---|
| QCNW-7880BHZZ | 2- 31 | AF | | C | |
| QCNW-7898BHZZ | 3- 29 | AP | | C | |
| QFS-C2521TAZZ | 6- 14 | AE | | A | |
| QFSHD2109AFZZ | 6- 15 | AC | | C | |
| QFS-K2006BHZZ | 6- 16 | AF | N | A | |
| QFS-K2007BHZZ | 6- 17 | AF | N | A | |
| QFS-K2008BHZZ | 6- 18 | AF | N | A | |
| QPLGA0006QCZZ | 3- 1 | AQ | | B | |
| QSOCZ2042SC32 | 7- 3 | AE | | C | |
| QSW-C9212BHZZ | 3- 16 | AL | N | B | |
| QSW-M6872BHZZ | 4- 14 | AR | | B | |
| QSW-S0744AFZZ | 9- 6 | AG | | B | |
| QSW-S1054YCKZ | 7- 4 | AK | N | B | |
| 【R】 | | | | | |
| RALMB6646BHZZ | 8- 11 | AQ | | B | |
| RC-EZ106ARC1A | 6- 19 | AD | | C | |
| RC-EZ6881RC1J | 6- 20 | AZ | | C | |
| RCiLC2424BHZZ | 6- 21 | AF | N | C | |
| RCiLC2425BHZZ | 6- 22 | AF | N | C | |
| RCiLC6653BHZZ | 6- 23 | AS | | C | |
| RCiLZ1003BHZZ | 6- 24 | AF | | C | |
| RCORF1008ACZZ | 8- 13 | AB | | C | |
| RCORF2337BHZZ | 6- 26 | AN | | C | |
| 〃 | 10- 6 | AN | | C | |
| RCORF2345BHZZ | 6- 25 | AD | N | C | |
| 〃 | 8- 12 | AD | N | C | |
| RCORF6696BHZZ | 3- 9 | AL | | C | |
| RCORF6699BHZZ | 3- 53 | AU | | C | |
| RCORF6700BHZZ | 1- 59 | AS | | C | |
| 〃 | 2- 59 | AS | | C | |
| 〃 | 5- 13 | AS | | C | |
| RCORF7002BHZZ | 6- 27 | AE | | C | |
| RCRMZ2002RCZZ | 8- 14 | AD | N | B | |
| RCRMZ7004RCZZ | 6- 28 | AE | | B | |
| RCRSP6676RCZZ | 8- 15 | AG | | B | |
| RCRSZ2399RCZZ | 6- 29 | AL | | B | |
| RLMPY2000RCZZ | 1- 14 | BF | N | B | |
| 〃 | 2- 14 | BF | N | B | |
| 〃 | 12- 4 | BF | N | B | |
| RMPTQ2103QCJJ | 6- 30 | AA | | B | |
| RMPTQ4101QCJJ | 6- 31 | AB | | B | |
| RMPTQ4102QCJJ | 6- 32 | AB | | B | |
| RMPTQ4103QCJJ | 6- 33 | AB | | B | |
| RMPTQ4472QCJJ | 6- 34 | AC | | B | |
| RTRNP2423BHZZ | 3- 7 | BD | N | B | |
| RTRNP2424BHZZ | 3- 7 | BD | N | B | |
| RVR-B2410QCZZ | 13- 2 | AG | | B | |
| 【S】 | | | | | |
| SPAKA3154BHZL | 5- 2 | AQ | N | D | |
| SPAKA3154BHZR | 5- 4 | AQ | N | D | |
| SPAKA3158BHZR | 5- 4 | AR | N | D | |
| SPAKA3159BHZL | 5- 2 | AR | N | D | |
| SPAKA8255BHZZ | 4- 38 | AC | | D | |
| SPAKC3156BHSA | 5- 1 | AY | N | D | |
| SPAKC3156BHZZ | 5- 1 | AY | N | D | |
| SPAKC3157BHSA | 5- 1 | BB | N | D | |
| SPAKC3157BHZZ | 5- 1 | BB | N | D | |
| SSAKA5004CCZZ | 4- 10 | AA | | D | |
| 〃 | 5- 18 | AA | | D | |
| SSAKH0013HCZZ | 5- 11 | AA | | D | |
| SSAKH3012CCZZ | 5- 7 | AA | | D | |
| SSAKH3015CCZZ | 5- 11 | AA | | D | |
| SSAKH4231CCZZ | 5- 5 | AA | | D | |
| 【T】 | | | | | |
| TCADH6788BHZA | 5- 6 | AC | | D | |
| TCADZ2001BHZA | 5- 16 | AM | | D | |
| TCAUS6677BHZZ | 3- 24 | AD | | D | |
| TGANE1001BHZC | 5- 15 | AG | | D | |
| TiNSE2445BHZZ | 5- 12 | BA | N | D | |
| TiNSE2449BHZZ | 5- 12 | BA | N | D | |
| TiNSF2447BHZZ | 5- 12 | BA | N | D | |
| TiNSF2451BHZZ | 5- 12 | BA | N | D | |
| TiNSG2446BHZZ | 5- 12 | BA | N | D | |
| TiNSG2450BHZZ | 5- 12 | BA | N | D | |
| TiNSS2448BHZZ | 5- 12 | BA | N | D | |
| TiNSS2452BHZZ | 5- 12 | BA | N | D | |
| TLABH2545BHZZ | 1-101 | AX | N | D | |
| TPAPR6656RC05 | 14- 1 | BA | | S | |
| TPAPR6657RC05 | 14- 2 | BD | | S | |
| 【U】 | | | | | |
| UBATZ6661BHZZ | 1- 30 | BA | | B | |

| PARTS CODE | NO. | PRICE RANK | NEW MARK | PART RANK | |
|---|---|---|---|---|---|
| UBATZ6661BHZZ | 2- 30 | BA | | B | |
| UKOG-2357RCZZ | 15-105 | BL | | S | |
| UKOG-6634RCZZ | 15-106 | AX | | S | |
| UKOG-6705RCZZ | 15-102 | BC | | S | |
| UKOG-6725BHZZ | 15-107 | BB | | S | |
| UKOG-6729BHZZ | 15-103 | AZ | | S | |
| 【V】 | | | | | |
| VCCCCY1HH101J | 6- 35 | AA | | C | |
| VCCCCY1HH150J | 8- 16 | AB | | C | |
| VCCCCY1HH331J | 6- 36 | AB | | C | |
| VCCCCY1HH470J | 6- 37 | AA | | C | |
| VCCCCY1HH471J | 6- 38 | AA | | C | |
| 〃 | 8- 17 | AA | | C | |
| VCCCTV1HH8R0C | 6- 39 | AB | N | C | |
| VCEAFX1AW226M | 6- 40 | AK | N | C | |
| 〃 | 8- 18 | AK | N | C | |
| VCEAGD1CW108M | 6- 41 | AE | | C | |
| VCEAGU1VW228M | 6- 42 | AG | | C | |
| VCEAPF1HW105M | 6- 43 | AE | N | C | |
| 〃 | 12- 5 | AE | N | C | |
| VCEAPF1HW106M | 6- 44 | AE | N | C | |
| VCEAPF1HW475M | 12- 6 | AE | N | C | |
| VCEAPF1VW106M | 6- 45 | AE | N | C | |
| VCEAPS1CC106M | 6- 46 | AC | | C | |
| 〃 | 7- 5 | AC | | C | |
| 〃 | 8- 19 | AC | | C | |
| VCEAPS1CC226M | 6- 47 | AC | | C | |
| VCKYCY1HB102K | 6- 48 | AA | | C | |
| 〃 | 8- 20 | AA | | C | |
| VCKYCY1HB222K | 8- 21 | AA | | C | |
| VCKYCY1HF104Z | 6- 49 | AA | | C | |
| 〃 | 7- 6 | AA | | C | |
| 〃 | 8- 22 | AA | | C | |
| 〃 | 12- 7 | AA | | C | |
| VCKYTV1CB474K | 6- 50 | AC | | C | |
| 〃 | 8- 23 | AC | | C | |
| VCKYTV1CF105Z | 12- 8 | AB | | C | |
| VCKYTV1HB103K | 6- 51 | AB | | C | |
| VCQYNA1HM333K | 6- 52 | AA | | C | |
| VHD1SR159//-1 | 6- 53 | AF | | B | |
| VHD1SS353//-1 | 6- 54 | AB | | B | |
| 〃 | 8- 24 | AB | | B | |
| VHDCP301///-1 | 6- 55 | AL | | B | |
| VHDRB060L//-1 | 6- 56 | AK | | B | |
| VHDRB160L60-1 | 6- 57 | AF | N | B | |
| VHEPTZ30B++-1 | 6- 58 | AG | | B | |
| VHEPTZ6.2A/-1 | 6- 59 | AH | | B | |
| VHEPTZ6R2B/-1 | 6- 60 | AG | N | B | |
| VHERD4.3MB1-1 | 6- 61 | AC | | B | |
| VHHMiNSMDC020 | 9- 7 | AF | | B | |
| VHi28F016SU70 | 6- 62 | BR | | B | |
| VHi6284LLT7-1 | 6- 70 | BN | N | B | |
| VHi65945GDP13 | 6- 63 | BA | N | B | |
| VHi74LS138NS1 | 8- 25 | AD | | B | |
| VHi74LV08/DR/ | 6- 65 | AK | | B | |
| VHi74LV14ADR/ | 6- 66 | AM | | B | |
| VHiBA00ASFP-1 | 8- 26 | AR | | B | |
| VHiBA033F++-1 | 6- 67 | AP | N | B | |
| VHiBA10393F-1 | 6- 68 | AC | | B | |
| VHiG76C256F70 | 6- 69 | BC | | B | |
| VHiH4728B02FS | 8- 27 | AW | | B | |
| VHiH641510810 | 6- 71 | BA | | B | |
| VHiKiA431F/-1 | 6- 72 | AK | | B | |
| VHiKiD65083AP | 8- 28 | AM | | B | |
| VHiLA5312V/-1 | 12- 9 | AM | | B | |
| VHiLM2574-ADJ | 6- 73 | AU | | B | |
| VHiLM317LD+-1 | 12- 12 | AL | N | B | |
| VHiM66271FP-1 | 6- 74 | BA | N | B | |
| VHiMAX3241/-1 | 6- 75 | AT | | B | |
| VHiPQ1CG2032F | 6- 76 | AL | | B | |
| VHiSMA7036M-1 | 6- 77 | BA | N | B | |
| VHiSN74HC00DR | 6- 78 | AG | | B | |
| VHiSN74HC02DR | 6- 79 | AH | | B | |
| VHiSN74HC153D | 8- 29 | AK | | B | |
| VHiSN74LS125R | 8- 30 | AL | | B | |
| VHiSNLV00AS-1 | 6- 64 | AK | N | B | |
| VHiTA8428K/-1 | 6- 80 | AN | | B | |
| VHiTD62308F-1 | 6- 81 | AH | | B | |
| VHiW42C3103G/ | 6- 82 | AU | | B | |
| VHPHDSP5621-1 | 11- 2 | AM | | B | |
| VRD-RC2EY270J | 11- 3 | AA | | C | |

| PARTS CODE | NO. | PRICE RANK | NEW MARK | PART RANK | |
|---|---|---|---|---|---|
| VRS-CY1JD000J | 6- 83 | AA | | C | |
| 〃 | 8- 31 | AA | | C | |
| 〃 | 12- 13 | AA | | C | |
| VRS-CY1JD100J | 6- 84 | AA | | C | |
| VRS-CY1JD102F | 6- 85 | AA | | C | |
| VRS-CY1JD102J | 6- 86 | AA | | C | |
| VRS-CY1JD103J | 6- 87 | AA | | C | |
| VRS-CY1JD104J | 6- 88 | AA | | C | |
| VRS-CY1JD105J | 8- 32 | AA | | C | |
| VRS-CY1JD122F | 6- 90 | AB | | C | |
| VRS-CY1JD123J | 8- 33 | AA | | C | |
| VRS-CY1JD151J | 8- 34 | AA | | C | |
| VRS-CY1JD163F | 6- 92 | AA | | C | |
| VRS-CY1JD180J | 12- 14 | AA | | C | |
| VRS-CY1JD181J | 8- 35 | AA | | C | |
| VRS-CY1JD183F | 6- 93 | AA | | C | |
| VRS-CY1JD183J | 6- 94 | AA | | C | |
| VRS-CY1JD202F | 6- 95 | AA | | C | |
| VRS-CY1JD203J | 6- 96 | AA | | C | |
| VRS-CY1JD221J | 6- 97 | AA | | C | |
| 〃 | 8- 36 | AA | | C | |
| VRS-CY1JD222F | 6- 98 | AA | | C | |
| VRS-CY1JD222J | 6- 99 | AA | | C | |
| 〃 | 8- 37 | AA | | C | |
| 〃 | 12- 15 | AA | | C | |
| VRS-CY1JD223F | 6-100 | AA | | C | |
| VRS-CY1JD241J | 6-101 | AA | | C | |
| 〃 | 12- 16 | AA | | C | |
| VRS-CY1JD242F | 8- 38 | AA | | C | |
| VRS-CY1JD302F | 6-103 | AA | | C | |
| VRS-CY1JD302J | 12- 17 | AA | | C | |
| VRSCY1JD3091F | 6-104 | AA | | C | |
| VRS-CY1JD330J | 6-105 | AA | | C | |
| 〃 | 8- 39 | AA | | C | |
| VRS-CY1JD333J | 6-106 | AA | | C | |
| VRS-CY1JD362F | 6-107 | AA | | C | |
| VRS-CY1JD470J | 6-108 | AA | | C | |
| VRS-CY1JD472F | 6-109 | AA | | C | |
| VRS-CY1JD472J | 6-110 | AA | | C | |
| 〃 | 8- 40 | AA | | C | |
| VRS-CY1JD473J | 6-111 | AA | | C | |
| 〃 | 8- 41 | AA | | C | |
| VRS-CY1JD562J | 6-112 | AA | | C | |
| VRS-CY1JD563J | 6-113 | AA | | C | |
| VRS-CY1JD680F | 6-114 | AA | N | C | |
| VRS-CY1JD682F | 8- 42 | AA | | C | |
| VRS-CY1JD912F | 6-115 | AA | | C | |
| VRSCY1JR1151F | 6- 89 | AA | N | C | |
| VRSCY1JR1330F | 6- 91 | AA | N | C | |
| VRS-CY1JR301F | 6-102 | AA | N | C | |
| VRS-TE2HF1R0F | 6-116 | AD | N | C | |
| VRS-TS2ED392J | 6-117 | AD | N | C | |
| VRS-TS3AD8R2J | 6-118 | AD | N | C | |
| VS2SA1036KQRC | 6-119 | AB | | B | |
| VS2SC2412K/-1 | 6-120 | AB | | B | |
| 〃 | 8- 43 | AB | | B | |
| VS2SK1826//-1 | 6-121 | AC | | B | |
| VSKRC106S//-1 | 8- 44 | AD | | B | |
| VSKTA1664//-1 | 8- 45 | AD | | B | |
| VSKTD998///-1 | 6-122 | AS | | B | |
| VSMTD2955V+-1 | 6-123 | AQ | N | B | |
| VVLLF10036FAT | 12- 18 | BF | N | B | |
| 【X】 | | | | | |
| XBBSC30P06000 | 1- 21 | AA | | C | |
| 〃 | 2- 21 | AA | | C | |
| XBBSC30P20000 | 3- 40 | AA | | C | |
| XBPSD30P06000 | 6-124 | AA | | C | |
| XBPSD30P06K00 | 3- 27 | AA | | C | |
| XEBSD30P06000 | 1- 48 | AA | | C | |
| XEBSD30P08000 | 1- 23 | AA | | C | |
| 〃 | 2- 23 | AA | | C | |
| 〃 | 3- 17 | AA | | C | |
| XEBSD30P10000 | 1- 32 | AA | | C | |
| XHBSD30P04000 | 2- 32 | AA | | C | |
| 〃 | 3- 35 | AA | | C | |
| XHBSD30P06000 | 4- 1 | AA | | C | |
| XHBSD30P12000 | 4- 26 | AA | | C | |
| XHBSD40P15000 | 4- 39 | AA | | C | |
| XHPSC30P08000 | 4- 41 | AA | | C | |
| XHPSD40P08KS0 | 3- 38 | AA | | C | |
| XJBSD30P10000 | 3- 14 | AA | | C | |

| PARTS CODE | NO. | PRICE RANK | NEW MARK | PART RANK | |
|---|---|---|---|---|---|
| XJBSD30P14000 | 3- 43 | AA | | C | |
| XJPSD30P06000 | 1- 63 | AA | | C | |
| XJPSD30P08000 | 1- 60 | AA | | C | |
| 〃 | 2- 60 | AA | | C | |
| XJPSD30P12X00 | 3- 30 | AB | | C | |
| XJSSD26P08000 | 3- 51 | AA | | C | |
| XJSSD30P08000 | 1- 15 | AA | | C | |
| 〃 | 2- 15 | AA | | C | |
| XNESD40-32000 | 4- 24 | AA | | C | |
| XNESD60-50000 | 4- 29 | AA | | C | |
| XRESJ50-06000 | 4- 20 | AA | | C | |
| XUBSD23P06000 | 2- 48 | AA | N | C | |
| XUBSD30P08000 | 4- 5 | AA | | C | |
| XUBSD40P08000 | 3- 5 | AA | | C | |
| XUBSD40P10000 | 1- 33 | AA | | C | |
| 〃 | 2- 33 | AA | | C | |
| XUPSD23P08000 | 1- 37 | AA | | C | |
| 〃 | 2- 37 | AA | | C | |
| XUPSD40P08000 | 1- 11 | AA | | C | |
| 〃 | 2- 11 | AA | | C | |
| XUPSD40P12000 | 3- 46 | AA | | C | |
| XWSSD40-10000 | 4- 23 | AA | | C | |
| XWSSD60-15000 | 4- 30 | AA | | C | |

| PARTS CODE | NO. | PRICE RANK | NEW MARK | PART RANK | |
|---|---|---|---|---|---|

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